

Practices of Resource Management in A Limbu Village

A study of Maunabuthuk VDC in Nepal

Shanti Limbu



**Thesis submitted in partial fulfillment of the requirements
for the Degree of Master of Philosophy in
Culture, Environment and Sustainability**

Centre for Development and the Environment

University of Oslo

Blindern, Norway

June 2011

Practices of Resource Management in A Limbu Village

A study of Maunabuthuk VDC in Nepal

Shanti Limbu

**Master of Philosophy in
Culture, Environment and Sustainability**

Centre for Development and the Environment

University of Oslo

Blindern, Norway

ACKNOWLEDGEMENTS

This thesis has been a contribution from many people and without their help and support I would not have come this far. First of all my deepest and sincere gratitude goes to my supervisor “Julian Kramer, Head of Research & Development section, IMDi” without whose help I would be completely lost. I would like to thank him for providing me with his continuous support, patience, valuable time and for always guiding me through my tough times of writing this thesis. Thank you Julian for everything and I have been very lucky to have a very supporting supervisor.

I shall further acknowledge and thank Centre for Development and the Environment (SUM) for their help and support. My sincere thanks to the key informants Mr Dhan Bahadur Limbu and Mr Balnanda Limbu for providing me with immense information and supporting me during the time of my fieldwork. I would also like to thank my family and friends without whose love and support I would not be able to complete my work. Thank you all for being there for me and for your encouragement. Last but not the least I thank all the respondents in the Maunabuthuk VDC for sharing their lives me.

Thank you Lord for all the support.

TABLE OF CONTENTS

Acknowledgement	iv
Table of Contents.....	v
List of Maps, Tables and Figures.....	vii
Abstract.....	x
Chapter 1.....	1
Introduction	1
1.1 Background	1
1.2 Research Questions.....	6
1.3 Rationale for choice of topic.....	7
Chapter 2.....	9
Methodology.....	9
2.1 Site Selection.....	9
2.2 Sampling Design.....	10
2.3 Sample Size.....	10
2.4 Sources of Data.....	11
2.5 Limitations of the study	12
2.6 Fieldwork Experience.....	12
Chapter 3.....	15
The Research Area.....	15
3.1 The village.....	15
3.2 The economy	17
3.3 The environment	19
3.4 The People.....	20
3.5 General Characteristics of Respondents.....	23

3.6 General Introduction of Two Households.....	26
Chapter 4.....	31
Theoretical Frame work.....	31
4.1 Natural Resource management: Concept and Challenges.....	31
4.2 Forest and Land in Nepal	36
4.3 Community Forest in Nepal.....	40
4.4 Kipat System.....	42
4.5 Government Policies on Forest and Land Management in Nepal...	44
Chapter 5.....	49
Results and Discussion.....	49
5.1 Agricultural Cropping pattern.....	49
5.2 Land and Soil Management.....	52
5.3 Livestock	55
5.4 Forests	57
5.5 Limbu Rituals and the Natural resources.....	63
5.6 Resource management: Practices, Changes and Challenges.....	68
5.7 Role of Government and NGOs.....	75
5.8 Role of Gender	78
Chapter 6.....	83
Conclusion.....	83
References.....	89
Appendix-I: Questionnaire for Household Survey.....	96
Appendix-II: Questionnaire for Key Informants.....	100

LIST OF MAPS, TABLES AND FIGURES

MAPS

1. Map of Nepal	viii
2. Map of Dhankuta District.....	ix

TABLES

1. Gender Distribution of the Respondents.....	23
2. Age Distribution of the Respondents.....	23
3. Land Use in the Hills and the Middle Mountains.....	37

FIGURES

1. Administrative Structure of the Local Governance of Nepal.....	16
2. Economic Activities of the Different Households.....	18
3. Households Headed by Male and Female.....	25
4. Literacy Rate of the Respondents.....	26
5. Seasonal Calendar of the Farmers.....	51
6. Percentage of Livestock Owned by the Households.....	56

MAP OF NEPAL

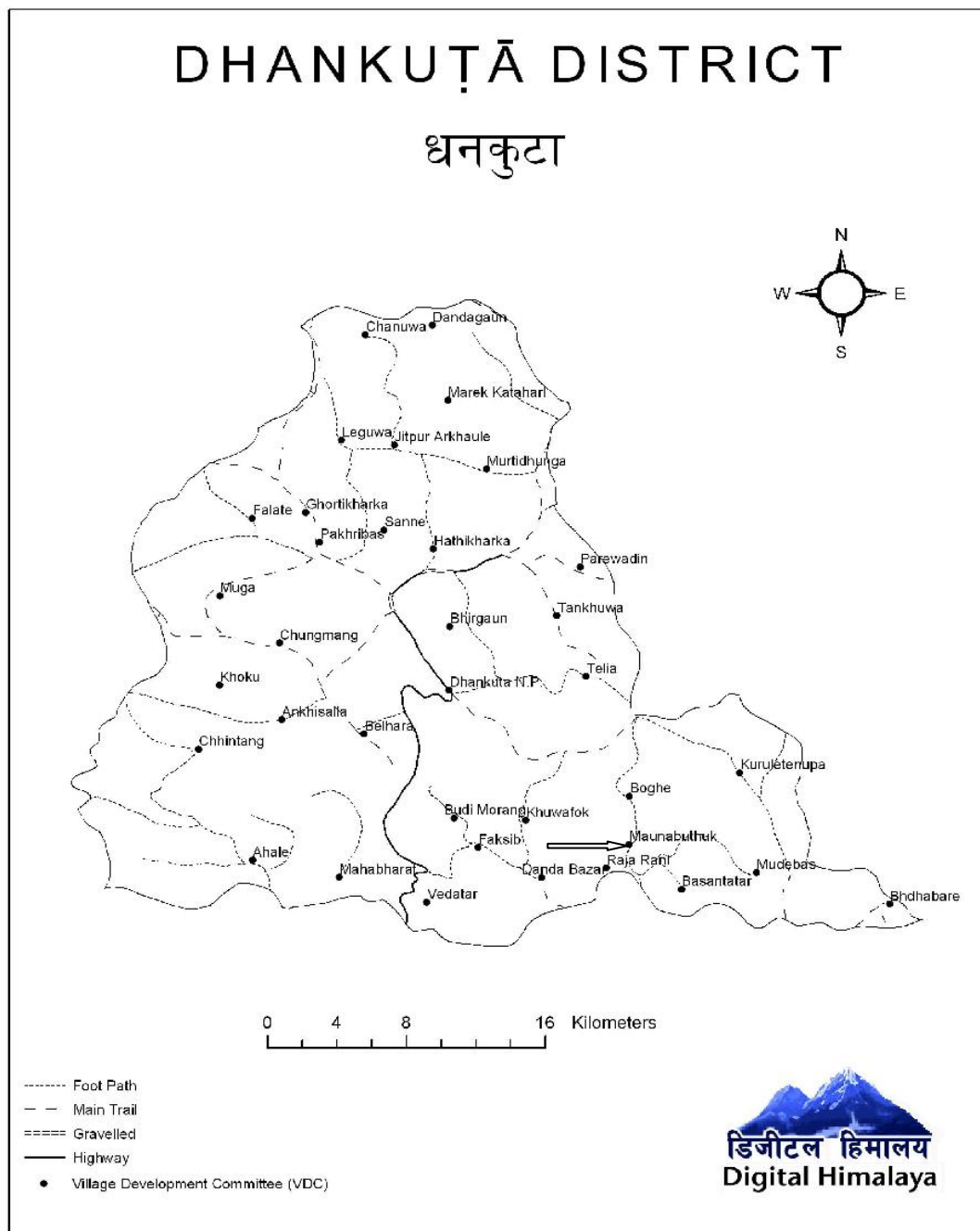


The map showing the 75 districts of Nepal – The black dot represents Dhankuta district where the research was conducted.

(Source <http://www.sabinjoshi.dk/nepalmap.html>)

DHANKUṬĀ DISTRICT

धनकुटा



MAP OF DHANKUTA DISTRICT

(Small arrow showing Maunabuthuk VDC)

Source:

(http://himalaya.socanth.cam.ac.uk/collections/maps/nepalmaps/district_dhankuta_road_stlmt.pdf)

Abstract

The main objective of the study was to find the practices of Limbu people in resource management. The study also aims to find out the relation of Limbu with nature and the role of government and NGOs in resource management have also been taken into study. The study was conducted in Maunabuthuk VDC of Dhankuta district in east Nepal. The research was conducted for three weeks from July- August 2010. The data were collected through structured questionnaire and key informant interviews. A total of 42 Limbu households were taken into study. The households were selected basically on the availability of people in their house and snowball sampling was also applied. It was found that agriculture was their main economic activity while only few of the people were engaged in off farm activities. Intercropping was found to be a common practice of agricultural system by the Limbu people. The agricultural lands had been divided into upland and lowland. The slopes of the land had been preserved by fodder trees, bamboos, Amliso (bouquet grass) that they planted regularly. Orange plantation was the main source of cash income for them while the vegetables also supported their income. They had community forests, reserved forests and also private forests. They had established their own local system of management of their resources. Besides the Limbu people shared a special relationship with the nature and basically they are known as 'nature worshipper' and had various religious rites and beliefs in relation to nature. The role of the government for resource management has been minimal in comparison to the NGOs while the role of women in resource management has also been encouraging. Hence, though Limbu people are managing their resources as per their needs and with their local knowledge, still they have their own challenges to deal with and they also need to further develop their management strategies.

CHAPTER 1

INTRODUCTION

Civilization was born when the first tree was felled, and will die when the last one falls –Billboard in El Castillo

1.1 Background

The environment has been there before the human beings or any other organisms existed on this planet. The survival of human beings is directly related to the environment and it is something which no one can deny. It provides us with the basic needs of our lives from food to clothing to shelter. Besides fulfilling the basic needs, the environment also provides us with the aesthetic values. The nature is an important part of our life and not just the human beings but the other organisms from flora to fauna are dependent on the environment. So we share a close relationship with the environment. According to Berkes (1999:3) the world today is densely populated by humans in close communication with one another over the surface of the earth. More and more, the world looks like a single society, a “global village”. With the increase in population, globalization, more pressure has been put into the environment.

We are constantly interacting with our natural environment and drawing on its vast power (Tucker 2003: 116). Blandford (1976: 11) specify that man has always depended on the land for food. Except for fish from the sea, he could not survive without the products of the soil, acquired either directly through plant life or from animals that live off plant life. He further signifies that man is dependent on nature and on the different seasons for plantation and harvest. In the world of today there are huge discussions regarding the degradation of the environment and overexploitation of resources on the one hand and increasing demand of the natural resources on the other. This is not only to satisfy the increasing number of people but also to fulfil the rising expectations of the

individuals to raise their standard of living, which is defined in terms of per capita consumption. Majority of the articles of consumption are derived from natural resources of the earth, either directly or indirectly. Even the processes of manufacturing require presence of resources like water and air and even land as space, in addition to the raw materials, derived largely from rocks, soils and biota. According to Burman (2003:147) man's dependence on environment has been immense and as long as human beings led a subsistence life, there was no need to manage the environment, it managed itself.

With the onset of industrial revolution, increase in population, economic competition we have put enormous pressure on the natural resources. This has led to the rise of various problems and challenges for our generation to deal with. We are dealing with the problems of food insecurity, birth of new diseases, landslides, loss of habitats for flora and fauna, species extinction, threat to the ecosystem and most of all we are dealing with the great challenges of the so called climate change. Our planet has undergone a huge change in terms of resource exploitation and the human activities are the ones to be blamed. It has gone under drastic change and with the development of human kind, the resources have been put at risk. All life on earth is reliant on each other. The effect on one aspect can alter its effects on other forms of the ecosystem. This complex natural system is composed of a variety of living organisms, dead organic matter as well as the inorganic components like energy, air, water, soil, rocks and minerals and land space. All the components of the system are interlinked by complicated processes and are dependent on each other (ibid: 148). According to Rambo and Sajise (1984) quoted in Wells (1995: 25) share that that human beings and the ecosystem share a relationship and thus they influence each other just like our structure of society is modified by our relation to the environment and also the structure of the ecosystem is influenced by us.

Environmental issues come up due to interaction of man with nature. Human beings carry out a number of activities for sustenance and development. Rapid increase in number of human population and our activities that are carried out to improve comfort and living standard has put negative effect in the quality of life on earth and has thus led to what is generally referred to as environmental degradation (Arya 1993: 73). In constantly globalizing markets for resource commodities such as food, timber, minerals, energy, tourism destinations, agricultural lands, urban lands, waste disposal sites and so on, resource management has emerged quickly as an important field of professional expertise connecting diverse places and people (Howitt 2001:8). Resources and their management have long been central in all political processes. Howitt (2001) explains the importance of resources as not as pre-existing substances or things, but should be understood in terms of its functions and relationships.

Natural resource management is basically a people management as the natural resources would not be so exploited if we were not involved (Jensen and Guthrie 2006: 259). According to Krueger and Mitchell (1997) cited in Notzke (1994) state that resource management is a complex decision making process which typically involves inventory, assessment, goal formulation, policies, programs, legislation, administration, and managerial strategies. They further explain that it comprises biophysical, economic, social, political, legal, institutional and technological perspectives as well as temporal and spatial dimensions and thus the concept of resources are dynamic one, and is culturally defined. Resource managers are increasingly required to respond to changing social values and government regulations (Howitt 2001:369). Randall (1981) has provided with the definition of resources:

“A resource is something that is useful and valuable in the condition in which we find it. In its raw or unmodified state, it may an input into the process of producing something of value, or it may enter consumption processes directly and thus be valued as amenity.... “Resource” is a

dynamic concept, and the possibility always exists that changes in information, technology and relative scarcity may make a valuable resource out of that which previously had no value. Second, things that are produced under human guidance in processes that combine resources, capital, technology, and/or labor, are not themselves called resources, although resources are always among the inputs used to produce them” (Randall 1981 quoted in Notzke 1994: 2).

Today the sustainable management of natural resources has been an issue that every country discusses about. There are only a few places in the world, often in isolated areas, where traditional systems of resource management are still in force. The globalization of western culture has also meant the globalization of western resource management (Berkes 1999:163). Wilken (1987: 4) explain that the concept of resource management was developed in industrially advanced societies, where scientific understanding of physical and chemical processes joined with modern concepts and equipment to produce methods for maximizing production or minimizing the deleterious effects of resource exploitation.

Nurrochmat (2005: 31) explain that many analysts of natural resource management refer to the thesis of ‘the tragedy of the commons’ (Hardin 1968). He sites the example given by Hardin and states that Hardin has given an example of open grazing to explain about the threat of ‘open access’ natural resources. As is stated by Hardin ‘...the tragedy of commons develops in this way. Picture a pasture open to all. It is to be expected that each herdsman will try to keep as many as cattle as possible on the commons....Finally, however, comes the day of reckoning...at this point, the inherent logic of the commons remorselessly generates tragedy’. Yet the tragedy of commons does not apply for every sphere of the society. Yet if it is to consider the tragedy of commons it would be wise to incorporate the local people in developing the sustainable

management of the resources. Which is why today many countries have developed the idea of community level management.

German et al. (2009:3) state that local people are indeed experts about their own environments and natural resources. The future quality of the rural environment therefore largely depends on the active role of local people, especially those that have a long term attachment to their natural environment (Drijver et.al., 1995: 29). German et al. (2009) further explain that the beginning for any 'management' of any natural resources is knowledge which can be done through the identification of problems and its patterns and by further understanding of processes and their outcomes plus by building the framework of theories, assumptions, definitions and values that brings all of these together. Anyone who manages the natural resources manages them on their own understanding of those resources and their rights and abilities to consume them. Thus Holling et al. (1998) quoted in Berkes and Dudgeon (2003) explain that traditional resource management systems may thus be viewed as experiments in successful living and drawing upon knowledge of these alternatives may provide insights and "speed up the process of adaptive management".

This study has been conducted in one of the village of Nepal among one of the ethnic groups. Limbu, who have been living in the mid hills of Nepal for centuries are said to be the nature worshipper. The study shall look into the management strategies adopted by the Limbu community in that particular village. This thesis has been divided into six chapters. The first chapter shall introduce the topic, with research questions and rationale for the choice of the topic. The second chapter shall incorporate the methodology part of the research. It will be followed by the third chapter which shall discuss regarding the research area. The next chapter four will be based on the theoretical framework and will be followed by the results and discussion part in chapter five. The last chapter of the thesis will include the conclusion of the thesis.

1.2 Research Questions

With the onset of globalization and the ability of people and goods to move all around the world, the resources have been used in its maximum limit and the over utilization of the resources have lead to their exploitation. This has further proceeded to the diminishing of the resources from the area which in turn is likely to harm our survival on this planet. Natural resources are an important aspect of our life. Different people use and manage their resources in their own way, be it the farmers of the developed nations or some woman in rural Nepal. The decreasing level of resources and its preservation have been the discussion of many national and international forums.

Mountain and ethnic people have been managing their resources in their own way by using their own methods and techniques for a long time. Limbu, one of the ethnic groups of Nepal have been living in the mountains of Nepal even before the country was united and have been making a livelihood out of the nature. Limbu (2005: 132) explain about the history of Limbus as tracing their ancestry back to the kirat people who were among the first people to be in the Himalayan foothills in prehistoric times to clear and start a life in the harsh land. Since then they have been utilizing their resources and have developed their own understanding and methods of management. The resources are important for them because their whole life depends on them. This study will look upon how the Limbu have been managing their resources in the particular research area. The overall target of this study is to examine and document the different practices adopted by Limbu in relation to the resource management. The following questions will be addressed in this study.

1. What is the relation between the Limbu and their resources around them?
Or how do the Limbus relate to their resources?
2. What are the different ways adopted by them to manage their resources?
3. What are the challenges faced by them in regard to managing their resources and how have they met these challenges?

4. Have the management practice changed over time?
5. What is the role of gender in the management?
6. What is the role of government and NGOs in the management process?

1.3 Rationale for Choice of Topic

Resource management has been a critical issue for the world today. It has presented many challenges and every nation has been working in their way to preserve the natural resources. The importance of resources for human beings is immense and no society or individual can deny this fact. The resources are not just for the human beings but also a necessity for the other organisms in our planet. With time, the resources have been exploited and over used by the human kind. This has caused tremendous stress on it. It has brought along severe changes in our planet which has threatened the existence of the human survival and the whole ecosystem as well. In order for us to survive, it has been necessary for us to preserve them and use them in a way that it does not diminish and our future generations too can have the benefits of it.

With the issues of climate change and environment degradation, Nepal has not remained aloof from its dangers. The country has also been struggling in the way to preserve its natural resources. Nepal is a small country landlocked in between the two big nations i.e. India and China. It has its own cultural value and is known for its natural beauty. More than 90 different ethnic groups live in the country. They possess their own unique cultural identity and have their own language. These different ethnic groups have been using and managing their resources in their different ways and Limbu community has been one of them. The resources are their means of survival and they have not failed to understand its importance. Still very few researches have been conducted in regard to the Limbu community.

The study is aimed to find the various practices of Limbu in their resource management which they have been adopting in the research area. Besides it

aims to find out the relation between them and their nature and the study shall further incorporate the challenges faced in regard to their management process. The resources shall include the land and the forests which they have been using it from generations and which has become an important part of their survival. Today some of the men of Limbu community tend to be working overseas to provide support for their families. Thus this study shall also look into the role of gender in the resource management. The management process undertaken by this community may be an example as how certain groups can manage their resources with their own understanding and knowledge. The outcome of the issues in the management process can help the policy makers to undergo the changes in their policy making.

CHAPTER 2

METHODOLOGY

This chapter shall cover the methodology that was adopted while conducting the research. The appropriate methods have been used to get the reliable data.

2.1 Site Selection

Nepal is a landlocked country in between China and India. Its total land area is 147,181 square kilometres. It is roughly rectangular in shape, 850 km wide (east-west) and 200 km broad (north-south). It is predominantly a mountainous country. With a horizontal distance of less than 200 kilometers, the topography rises from 200 meters to 8,489 meters above sea level. Over 25 million people live in this landscape. Physically it is divided into three regions, Himalayan, Hill and Terai, which run east to west (Kasajoo 2008: 335). The Himalayas are the high mountains and the hilly region varies from 800 to 4000 meters while Terai are the flat lands.

The research is conducted in the Maunabuthuk Village Development Committee (VDC), ward number 2 of Dhankuta district. As a whole, the VDC consisted of 9 wards. The site was selected purposefully. The reason for selecting the site is that there is a maximum number of Limbu settlement and the areas also fits best for the security reasons. Nepal has not been a safe country for the past few years owing to the political instability and especially by the rise of Maoists in the country. Many people lost their lives and were displaced owing to the internal conflict that was raised by the Maoists. Though recently the different political parties and the Maoists themselves have somehow come to few agreements yet the fear the Maoists had instilled in the minds of the people are still lingering. For this reason, it was still not very safe to travel across the country. Furthermore for a female to travel alone to faraway and unknown places are not much allowed by the family with such a situation in the country. The site is just 4-5 hours drive from the city hub, Dharan which

is also my home town and the village has been my ancestor's home. So from all the perspective it was safe and reliable for me to conduct my research in the particular area.

2.2 Sampling Design

The field work was carried out for three weeks from the second week of July till the first week of August 2010 in Nepal. This research adopts both the qualitative and quantitative research design based on the study yet the focus has been on the qualitative method. Qualitative method is the research method specially adopted by the social science researchers. It focuses on the in-depth study of the human behaviour and the reasons for their certain ways they act. It tries to answer the questions such as why, how, when etc and focus on the small samples. The quantitative method has been used in order to find only the demographic characteristics of the respondents.

The ward number two was selected purposefully as it had more number of Limbu households. It had 95% of Limbu household while only 5% were from the non-Limbu community. The samples were selected on the availability of the people in the house and also snowball sampling was applied. Snowball sampling is a sampling design where a particular subject refers to another person whom they know. As it was millet planting season in the village most of the members of the house were on the field, so it was quite hard to meet people at their home. The respondent representing the household was selected by using convenience sampling design. Convenience sampling is a sampling technique where the subjects are taken into study because of their availability and also because the sample is convenient.

2.3 Sample Size

As for the sample size, a total of 42 Limbu households out of 83 households of the ward were taken into study. Two key informant interviews were also selected. The reason to select two key informants was, through these two

informants I expected to get more information and furthermore it would also be helpful to countercheck the information provided by either of the two respondents. More importantly the two key informants were from different backgrounds whereby they could provide with diverse information on different subjects. Mr. Dhan Bahadur Limbu is a well known man in the village. He has been residing there since his childhood and positions himself as the most well being and smart person which is why he was the most influential person of the village. He has gained education till primary level. Mr. Balnanda Limbu is the principal of the village school and also has been living in the village for all his life. He was the most educated person in the village. Two households were also selected by using purposive sampling design. Purposive sampling is a sampling technique where the subjects are selected in deliberative way by using own judgment. A brief description of the two households will be discussed in the next chapter. Further, researcher's own observation was also carried out.

2.4 Sources of Data

This study has been conducted by collecting the information both from primary and secondary sources of information. Primary data collection has been the main part of the study which was conducted through structured questionnaire, interviews and key informant interviews. Data from the structured questionnaire was collected through schedule method. Observation analysis has also been made in some of the aspects like the involvement of women and children in their daily work and household chores, observation around the respondent's home was also done so as to have an idea of their economic well being. Attention has been given so as to avoid any sort of biasness while interpreting the data. It is likely that conducting research in one's own community sometimes brings along biasness. There are more tendencies to interpret the research on their favour and fail to bring out the important issues. So the data has been tried to be interpreted to avoid any sort of these biasness by bringing out whatever has been seen in the fieldwork. For the secondary

data collection, different books, e-books, thesis, online publications, have been incorporated in the study.

2.5 Limitations of the Study

The study is not free from the constraints and limitations. Yet it has been conducted with best efforts. Some of the limitations while conducting the research are as follows.

1. The study has been done in the ward number 2 of Maunabudhuk VDC, hence the findings of the study cannot be generalized for the whole of Limbu community.
2. The study has been confined only to 42 households owing to time constraints.
3. The interviews have been conducted mostly among the middle aged and old people. The reason was the less availability of young people in the village. So the response of the youth has not been much incorporated.
4. The study has been based on the fieldwork which was conducted only for 3 weeks.

2.6 Fieldwork Experience

Fieldwork is both a challenge and a way to learn and explore something new in a different world with different people. It takes a lot of preparation before a person decides to go for it. A lot of desk study is needed and a confidence to explore an alien world. For me, it brought both the excitement and challenge. Excitement in a sense, I had a lot more things to explore new things which I might be completely unaware of and challenge was the time limitation and that I was conducting my fieldwork in my ancestors place and within my own community. Sometimes it tends to bring along biasness while conducting a research within owns community, biasness of interpreting the data in their favour. The challenge for me was to overcome them and extract the relevant

information from my respondents. It was somehow easy for me to collect the information than I had expected except for the information on the income of the households. Another good aspect of my field work was that I had been visiting the place after more than a decade. It was good to see the known faces and they too were quite happy to see me and I had a warm welcome.

The time when the research was conducted was a very busy time for the people of that area. It was a time for planting millet and all of the people were very busy with their work and it was difficult to meet them and have them interviewed. Sometimes I had to visit them during the night after they had their dinner. However, they were very kind enough to give me their time and help me in their best possible ways. Many of them felt proud to have someone from their own village to conduct such research. One of the difficult things while conducting research in a known area within the known faces is that there might be the cases of misunderstanding by the respondents like in the cases of questions regarding their income. That was also the reason that I could not get the information regarding the income of the respondents and their exact land holdings. This information could have given me the exact economic status of the households. Some of the people were not much comfortable while sharing some of the information. They might have feared that I might share their information to the other people in the village. So I left behind the idea of asking any sort of questions regarding income and tried to use own observation regarding this. The other difficulty I had to face was, it was a rainy season and it was not an easy task to walk around in the rain and sometimes with heavy rain, it was difficult to go outside and carry out the interviews.

Besides the various difficulties the fieldwork was a good experience for me. As a way it was a good opportunity to visit my ancestor's place after a long time. I had some of the very delicious foods and also improved my Limbu language speaking skills which made them proud of me. This research was a great experience for me and it is also opened few gates to my knowledge.

CHAPTER 3

RESEARCH AREA

This chapter shall deal with the general introduction of the village, people and their economic situation and the general characteristics of the respondents and the households.

3.1 The Village

Dhankuta district lies in the middle hills of the Koshi zone of Eastern Development Region of Nepal and is one among the 75 districts of the country. Dhankuta is the district headquarter and operates as the major administrative place for the eastern region. Maunabuthuk is one of the VDCs of Dhankuta district. The VDC had a total of 9 wards and ward number 2 was the one where the research was conducted. The ward lies in the mid of all the 9 wards. Further on here, the ward number 2 shall be mentioned by the term ‘village’ so as to make it sound easier. The settlement of the village is concentrated in the middle, in between the community forests and reserved forests. Maunabuthuk is a four hours drive from the main city hub Dharan, of Sunsari District, which is a nearby district. Here all of the people from various hilly regions come to purchase and sell their commodities.

The following figure represents the administrative structure of local development of Nepal. The DDC, VDC and the ward are the administrative units of the ministry of local development. The executive committees of the DDC, VDC and ward are elected. The ward is the smallest administrative unit in the country. The cluster of 9 wards make up the VDC and the cluster of 13-114 VDCs make up a district.

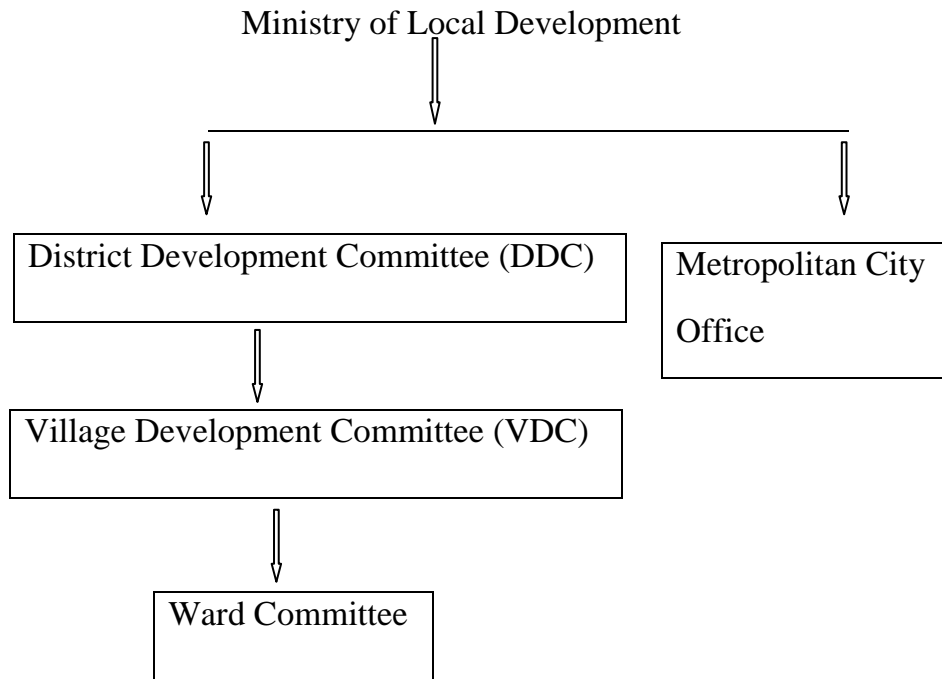


Figure 1: Administrative Structure of the Local Governance of Nepal

The original name of the VDC was Puthuk where ‘Pu’ means bird and ‘Thuk’ means the place where the birds live in Limbu language. But then people started to mispronounce it and changed it to Buthuk which is the short form of Maunabuthuk. The original inhabitants of the place were the hunters and gatherers but the Limbu people fought with them and won over the land and have been residing since then from generations. The formation of the village has its own story. After the takeover of the village by the Limbu, there used to be seven Limbu brothers who all lived in one house. The elder brother wanted to have a brick over the roof of the house so that their home would be beautified. So one fine day he took off to Kathmandu (the capital) to get a license for the bricks to be put on the roofs. Those days demanded a person to have a license if they want the bricks to be put over their roofs. Back then, the roofs of the house were made from bamboos and dried crops leaves and are still prevalent.

Since they had no transportation people had to walk to reach to places. It took him many days to reach his destination. Finally when he was back from

Kathmandu with all the work done, he found out that his other brothers had disinherited him from the property. His wife was supposed to be a very clever woman. She filed a case against them in the village 'Pancha Vhalatmi'. A 'Pancha Vhalatmi' is a group of wise men in the village who make the decision for the whole village and also acts as a village court. This kind of system was very prevalent in the Nepalese villages over the years. The Pancha Valatmi's decision turned out to be in favour of the elder brother. Thus he and his family were allowed to settle in the village but if the case went against him, they would have had to leave the place and settle somewhere else. Later, the generations of all the seven brothers expanded. They did not want to split so they all decided to live in the same village.

3.2 The Economy

More than 80% of Nepal's population depends on agriculture for livelihood. Matsuki and Nagamatsu (2008:185) explain that agricultural production has long been an economic activity intended to nurture the life of living beings. Most of the people in the village were found to have relied on agriculture. Only few households were engaged in off farm activities as a supplement for extra income. The off farm activities included such as one of the family member going abroad for extra earning specially in the gulf countries, owning a shop, working as a wage laborer and some of them were getting an old age allowance from the government. The different economic activities of the household have been presented in the figure.

It was found that 67% (28 HH) were fully dependent on agriculture to meet their needs. While 19% (8 HH) had one of their male member in the gulf country. Only two households owned a shop. It was 7% (3 HH) who got their old age allowance of NRs 500 every month from the government and only one household earned extra income from working as a daily wage labourer. The income of the wage labourer varied from Nrs 50-300 depending on the kind of

work and how much the person is willing and can afford to pay for the services they provide.

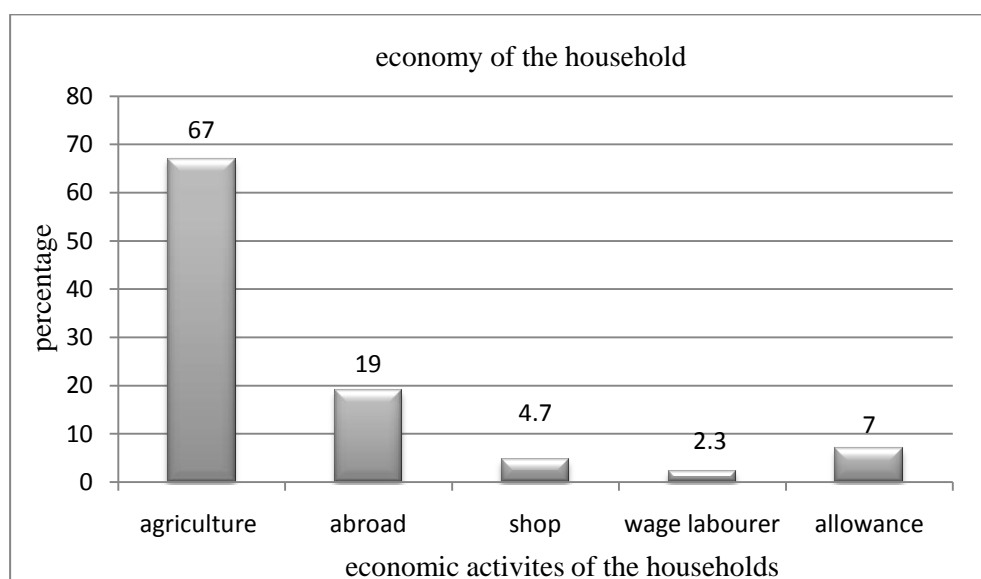


Figure 2: Economic activities of the different households

Though few households had been engaged in off farm activities and were earning some extra money yet none of the people had left behind the agricultural activities. They believed that it was their way of living from their ancestors so they could not easily let it go. The 67% of the households who fully depend on agriculture, their main source of income was from the selling of fruits, vegetables, bamboo products and so on. They planted different seasonal fruits and vegetables. Orange plantation was the main source of income. Besides they planted pear, cucumber, chili, lemons, tomatoes, bamboos, soybeans, potatoes, *tarul* (yam), and *sisnu* (stinging nettle) which also brought them money. *Sisnu* is a shrub which is about 2-3 meters high and irritates the skin when touched. It is an important food and its leaves are eaten as a vegetable. It is also supposed to cure the cough and cold. All of these different goods were brought down to the city, Dharan to sell them.

The average amount of orange sold by a single household was 1200 kilogram which would pay them off with the income of Nrs 45000. Orange plantation was the main source of cash income for people and this VDC was also well

known for a huge orange production in the district. The other important fruit they sold was pear which provided them with the average income of Nrs 7000. Bamboos were found in abundant amount and it has its multiple uses. The bamboo products were also an important source of income. The people made different handicraft products out of bamboo such as *nanglo*, *doko* (traditional equipments) and *mats* and sold them. The bamboo shoot (*taama*) which is eaten is also a supplement for the income. While on the other hand the bamboo is equally important for their social and cultural practices. It is mainly used to build the house, putting bars around the house and also to build paddocks for their livestock. Bamboo also acts as a very useful means to carry the dead bodies of the people.

Some of the household made some extra earning from selling their livestock like goat, pigs and chickens. Yet it was only two households who sometimes sold their livestock while most of the time it was used for household consumption and for religious purpose. The main crops were rice, maize and millet. Most of the productivity was consumed in the household and only 10% (4 HH) sold their crops. The other important cash crop is *Amliso* (bouquet grass) which is planted in large number in the upland. This shrub is 2-3 meters tall. This is especially used as a broom to clean the house. It is even used as a fodder and its stem after drying can also used as fuel wood. They have been planting this species from generations and a huge quantity of *amliso* is also exported to India.

3.3 The Environment

The climatic condition of the village is suitable for the citrus fruits. One of the main cash crops was orange and pear. The entire household had both the orange and pear plantation. Yet they focused more on orange plantation. The Minimum number of orange plant a single household possessed was 10. The maximum numbers of the plant they planted were 100 in numbers. The village never had experienced any landslides while their neighboring village had to.

The reason was that they had huge number of trees and the presence of large number of orange trees had also helped in the conservation of the soil.

The village had a dense mixed forest and the whole of the VDC consisted of eight community forests. While this village in particular had one community forest and one reserved forest. Most of the households also possessed private forests. The significance and detail description of these different forests mentioned here will be discussed in the further chapter. The lands of the village are categorized as forests land and agricultural land. The agricultural lands are categorized as *khet* (lowland) and *pakho* (upland). *Khet* are lands in river valleys and terraces that can retain water for sufficiently long periods to grow rice and wheat. *Pakho* are lands situated in high terrain that are incapable of retaining water, so that only such crops maize, millet, and dry rice can be grown (Regmi 1976: 126).

3.4 The People

The total population of Maunabuthuk VDC was 2372 with a total of 440 households (Nepal Census Data 2001). Majority of the people followed the kirat religion while only less than half percentages of people were Hindus, Buddhist, Christian and Islam. Limbu is one among the various ethnic groups in Nepal, who share 1.59 percentage (CBS, 2008) of the whole population. They have settled in the hills of the extreme eastern portion of the country in the basin of the Tambar River, at altitudes between 1650 and 6600 feet (Sagant 1976:56). During the years prior to the creation of the Kingdom Limbu settlements had been established throughout the district. These settlements were generally situated on the top of the ridges, and the inhabitants laid claim to large tracts of forest and uncultivated bush surrounding the areas they inhabited (Caplan 1970: 7).

The Limbus are generally regarded as among the first inhabitants of east Nepal. Together with the Rais, they are thought to be the descendants of ancient Kiratis. In many contemporary government documents the area of east Nepal is

still referred to as Kirat (Caplan 1970: 14). Kirat are the groups of indigenous ethnic people in the Himalayas of Nepal. Limbus are a branch of Kirata segregated by the Gurkha rulers with special grant of land privileges and local authorities in some particular areas (Limbuwan) from the rest of their kindred. Historical documents reveal that the term “Limbu” was used by Gurkha (Nepal) administration after 1774 (Subba 1995: 12). Their first weapon was bow and arrow. The groups of ten chiefs were called Limbus or Archers and the land which they won with the help of Li or bow and arrows were called Limbuwan (Chemjong 1984; cited in Subba 1995: 22).

According to Sagant (1976: 58) Limbu are culturally rich and have been the agriculturalist people of the mongoloid race. They are neither Hindu nor Buddhist and have a religion which is peculiar to them, a traditional religion which is without a name that have been termed as ‘animistic’. They have their own mythology, own gods and goddesses and their own group of priests. Choudhury (2006: 33) states that the cultural activities of Limbus are based on Mundhum or Muddum (as the Rai call it) which is a collection of oral narratives on nature, man, customs, traditions, rites, rituals, crops and almost all economic pursuits of man in the midst of nature. According to Weidert and Subba (1985) Limbus have their distinct culture, tradition and religion of their own though they have been living with the people of other religion such as Hindu and Buddhist. They further explain that Limbu people have a long tradition of narrating or reciting Mundhums and performing certain rituals and observing ceremonies in their own different ways. In regard to Mundhum, they define it as a legend, a folklore, prehistoric accounts, sermons and moral or philosophical exhortations in poetic language. It is a scripture living in oral tradition. It denotes to “The Limbu religion” or “The Limbu religious literature”. Subba (1995) explain that these traditional resources are not properly utilized or documented so far and are rapidly disappearing. She specifies that some studies on the history, literature, language, customs, land

ownership and other privileges of Limbus have been conducted by western scholars.

The village was mostly found to be inhabited by the Limbu community. Rai were the ones occupying as the second large population after Limbu. Only few numbers of households were from the other castes such as Brahmin, Chettri, and some lower castes people. Since the forefathers of the Limbu people living here did not want to be separated, most of the Limbu people are related to each other. When a person walks by we can see them greeting each other by using the kinship term. The other reason their forefathers stayed together was they wanted to be there for each other when in need and mostly they would also constantly be in touch.

The village was found to be mostly inhabited by the old, middle aged generations and more by women and girls. It was observed that most of family had more female members than the men. People in Nepal especially in the rural areas still prefer to have a boy child than a girl child. To have a boy is important because the daughters shall one day get married and will go to her husband's house while a son will be the one looking after his parents at their old age. So in terms of security, property inheritance, continuation of lineage in a family, it is important to have a son. So sometimes a woman is also forced to have a baby until she finally gives birth to a boy child. It was the reason the village had more female numbers. Some of the younger male members had been out of the village to pursue a better living and earn for the family yet the percentage has been minimum. A handful of people had also migrated to the city areas for a better living. Some of the people were even forced to migrate due to the Maoists conflict in the country. The ten years of conflict has displaced a huge number of people in the nation. It had become mostly unsafe for the younger men to stay in the village. They were forced to join the Maoists army and as for the women it was equally threatening.

3.5 General Characteristics of the Respondents

3.5.1 Age Distribution and Sex of the Respondents

A total of 42 households were taken into study for this research. Each household has been represented by one respondent. The sex division of the respondents has been shown in the table number 1. The table shows both the frequency and percentage of the male and female respondents. Out of the total respondents 45% (19) of them were male while 55% (23) of them were female.

Sex	Frequency	Percent
Male	19	45
Female	23	55
Total	42	100

Table 1: Gender distribution of the respondents

The respondents have been found of varying ages. The youngest respondent was found to be of 16 years and the oldest respondent was of 80 years. The mean age of the respondent was 46.97 years. The highest number of the respondents was from the age of 40 to 59. The table 2 shows the age distribution of the respondents.

Age group	Frequency	Percent
Less than 25	3	7
25-39	11	26
40-59	15	36
60-70	10	24
70+	3	7
Total	42	100

Table 2: Age distribution of the respondents

The respondents had been residing in the village for years. Almost 90 percent of the respondents were staying there since their birth. Only few of the respondents had migrated there specially the women after they had been married. That was also the reason that the village had so much of importance in their life.

3.5.2 Family and Household

It was found that 85% (36 HH) of household had a nuclear family ranging their family members from 2- 8 while the average family member they had was 5. Only 12% (5 HH) of the household shared the joint family system while one household was found who had a single member living in the house. According to the response of the questionnaire by the respondents it was found that most of the households were led equally by both the gender. It was in 67% (28 HH) where the household was managed equally by both male and female of the house. All the decisions in the house were made equally by both the gender. They would consult each other in regard to every decision that was to be made in the house. The 10% of the household (4 HH), the male were responsible for the household decisions. In the remaining 23% (10 HH), the women was responsible for the household decisions. These particular households had no male members in their house as they were outside the country and two households had only female member in their house. Thus the women were entirely responsible for all the household responsibilities and the decisions that were to be made for the household.

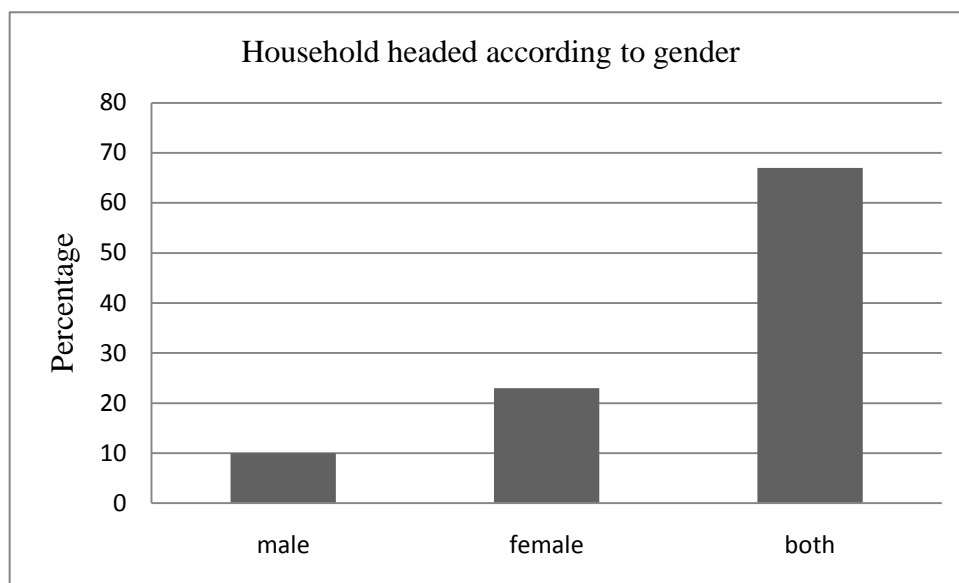


Figure 3: Households headed by male and female

The figure shows that most of the household were led by both male and female. It was found that in Limbu community female are equally involved in the decision making process of the household.

3.5.3 Literacy Rate

Regarding the literacy rate of the respondents in the research area it was found that less than half of the population was literate. Figure 3 explains the literacy rate of the respondents. The data reveals that 59% of the respondents were illiterate with only 41% being literate. Among the literate population it was 41% who attended the school till primary level and 53% were educated till the secondary level where only 6% went till high school. To discuss further regarding the literacy rate of the gender, it was 56% of the male members who were literate and 32% of female among the respondents were found to be literate.

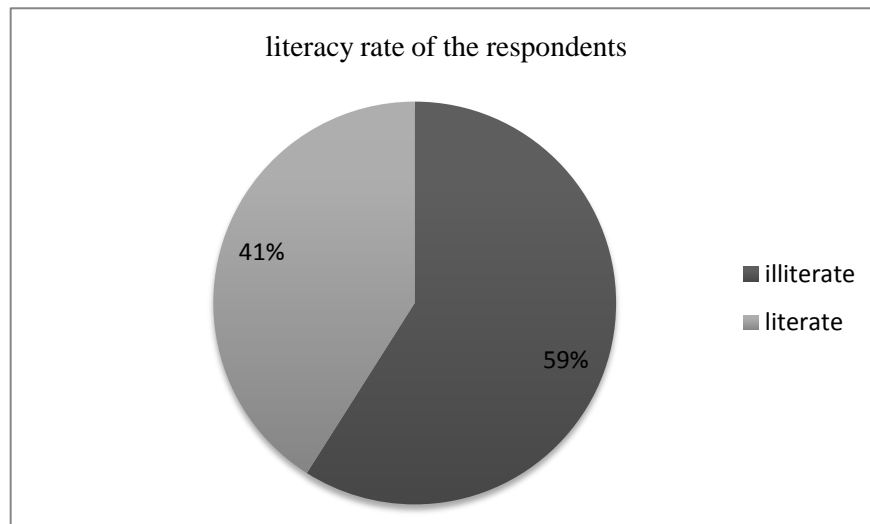


Figure 4: Literacy rate of the respondents

Though the school had been established earlier in the year 1956 yet there was not a custom of going to school especially for women. The children instead of attending to schools had to do the household chores. They also had a taboo that if the women are to be educated then she becomes a witch. Some of them even believed that if a woman gets educated then she gets too smart for any men or could even be able to write love letters to men and would bring shame to her family. So they were prevented from going to school. Recently however this concept has been changed and all most all of the youngsters including the girls are sent to school. The village school only provides education till secondary level. It was learnt that the students after completing their secondary education usually went to Dhankuta district or Dharan to get higher education if they wanted. Yet the number of students pursuing higher education has been minimum.

3.6 General Introduction of Two households

Two households were selected for the qualitative studies and there lies a particular reason for selecting them. These two households presented different characteristics. They both differed in terms of their economic status and their management strategies. Both of the households had a completely different

family structure. So the idea was to get the differed level of information in regard to their management process of the resources. Besides the members of these households were easily available as they were near to my place of stay during the time of the research and the idea was also to have an opportunity for close observation analysis of these two households. The process of collecting data from these households was the same through structured questionnaires but was taken in-depth interviews. The social structure, status of female in the Limbu households, the different Limbu rituals and culture, issues in relation to community forests, management of fuel and fodder, perceptions regarding the organic and inorganic fertilizers were the different information that were gathered in terms of the interviews.

3.6.1 Household I

This particular household had five family members. A mother, father and three daughters. They had been residing there since the last 41 years but the wife had been from a nearby village. They were a well off family in the context of the village. The man had been in the gulf country working as a migrant worker for the past few years. But then, he decided to return to his own village and making a living since life was hard in the foreign country with a hard job. He was literate and was of 41 years of age. The mother was 38 years old and she was semi-literate and was only familiar with the native language i.e. Nepali and Limbu and had no knowledge regarding the English language. All the three daughters aged between 12 to 20 went to school. Their main income was agriculture. The selling of orange, pear and vegetables fetched them money. They had livestock such as pig, goat, cow and chicken. They even sold pigs sometimes. The fuel and fodder were managed mostly from the private forest and some from the community forests. It was observed that the land holdings they had, was sufficient to feed them and also to allocate the land for the private forest.

The women did all the household chores while the daughters took the responsibilities to gather fuel, fodder and water. They even worked in the fields when there was a season to plant the crops. The youngest daughter aged 12 was mostly responsible for fetching water from the spring which was situated downhill. She brought the water, keeping the huge pot in the basket usually known as '*doko*' and carried it all the way up to her home. Engaging the children in the household work has been prominent in the hilly areas of Nepal. It has been a way of their lives and that is how they have been brought up. The lack of labour and large amount of works in the household prompts the parents to keep their children at work. And more, they don't have many alternatives here. In a way it is like a culture to keep their children at work. At their very early age they are taught to do the household chores and take up some responsibilities of the household works. The father of the house took up the difficult works and also participated in community levels. Yet in the absence of the man, the wife would participate in the community level. All the decisions were made by the husband but he would also consult his wife.

3.6.2 Household II

This household consists of only two females, the mother and the daughter. The mother is 76 years old while the daughter is 40 years old and is still unmarried. The mother is a widow and they have been living together, since the daughter decided not to marry. She has one elder brother but he decided to separate after he got married and settled in another home with this family. He occasionally provides support to this household because he himself was not economically sound. Both the mother and daughter are illiterate. Their main income is from the sale of oranges, pear, vegetables and crops. The livestock they owned were pig, goat and chicken. They also sell the pigs and goat while the chicken was consumed for household and religious purposes. Since they did not own their private forest, the fuel and fodder were managed from the community forest. They were only two members in the family thus the consumption of fuel wood

and fodder was much less which was also the reason they did not need the private forest. The daughter was more responsible for working in the field and attending in the community participation while the mother looked after the household chores and the livestock.

CHAPTER 4

THEORITICAL FRAMEWORK

This chapter shall deal with the theoretical part of the research. The different literatures related to resource management, status of forest and soil in Nepal has been taken into study. The relevant books, articles, online journals have been the source of this chapter. The policies of the government of Nepal in regard to forest and soil conservation have been included in this chapter.

4.1 Natural Resource Management: Concept and Challenges

Anderson (2010) quotes as “Shakespeare said that the world is a stage and we are just players. In some other respects, the world is a farm and we are just farmers. As consumers, voters, or cultivators ourselves, we all influence decisions about whether and when to harvest our crop of wildlife and our stock of minerals. When farming our vast forests and oceans, we must also decide how many trees and fish to reap, how to bring them to market, and how to reseed the land and waters. Decisions about these resources must be made in light of their repercussions for current and future generations. This is the task of natural resource management” (Anderson 2010: 9).

Vaughn (2007) explains that the term natural resources are largely dependent upon the context in which it is used. Sometimes the phrase refers to renewable resources which can be replaced by human interference or by nature itself. This includes trees and forests, water, wildlife, wilderness, soil, grass-land and pairies, and marine life. She further explains that the definitions sometimes include non renewable natural resources-petroleum, natural gas and hard minerals. Renewable resources such as trees can be replanted, fish habitats can be brought back and some wildlife can be reintroduced into their natural habitat while the non-renewable resources are limited and cannot be renewed and once it is depleted may never be formed again. Zimmerman (1964) quoted in Notzke

(1994: 2) state that “resources are not, they become”. Natural resources if destroyed or degraded, they cannot be reproduced or restored by man except perhaps with great difficulty. Thus there have been the views regarding its irreversibility (Chisholm 1988; quoted in Nurrochmat 2005: 31).

Anderson (2010: 9) state that whether, when, and how to harvest natural resources is the issue of how to manage access to resources that are not privately controlled. He furthers illustrates by giving an example of fish that started to decline from the world’s ocean in the 1990s which were all owing to overfishing, pollution, and inadequate regulation. He thus make the explanation that when those with access to natural resources do not feel the effects of their decisions because they do not own the resources they are depleting, their actions may be inappropriate and harmful to society. The challenge in that case is to find ways to provide incentives for everyone to use natural resources in a responsible way. He thus puts forward that this can mean limiting access, building better policies for resource management, or creating different punishment schemes in areas where many of our valued natural resources are. Barber et al. (1994) quoted in Nurrochmat (2005: 31) explain about the sustainability of the resource management which is as easy to talk but is equally complicated to achieve. They provide with the four elements of sustainable resource management: first, ecological integrity and sustainability; second, sustainable and equitable human resource uses; third, integrated management at the right scale; and fourth, equitable and informed participation by stakeholders.

The past years have shown the importance of understanding the relationship between social and ecological systems that will help for managing the use of natural resources (Alcorn 1997, Berkes and Farver 1989, Little and Brokensha 1987, McCay and Acheson 1987, Ostrom 1991 1997, quoted in Ashenafi and Williams 2005: 540). Ecologists continually point out that biological conservation and ecosystem management require human beings act or range to

be adequate (e.g., McDonnell and Pickett 1993, Mangel et.al. 1996, Carpenter and Turner 1998, Lubchenco 1998, quoted in Colding and Folke 2001: 584). Nurrochmat (2005: 30) claim that in order to increase environmental management efficiency and improve equity and justice for local people, many environmentalists have advocated participatory and community based natural resource management. Resource management is a complex thing. So this requires a commitment level from all sectors of the society especially from those who continuously interact with the resources and whose survivals are dependent on the natural resources.

With the growth in population and increase in the consumption habits of the people, the natural resources have been at stake. Everyday the number of life is increasing in the planet which is putting more pressure on the environment. Their enormous consumption has lead to the over exploitation of the natural resources. More demands are to be met and more mouths are to be fed which is the reason the resources are to be managed in a sustainable way. As the resources are not just for us but it should also be preserved for the coming generation and we might lose the productive capacity of the resources. Today every nation has been aware of the depleting natural resources and have started to incorporate the policies regarding their conservation and management. Other than the government bodies various other actors such as the NGOs, INGOs, education sectors are equally arising these days and have been promoting the concept of environment conservation and their management.

Since the 1980s, however, governments have put an effort to involve community, major industry groups and corporate sectors in considering policies and programs which was initially on economic issues and later have been increasingly on social and environmental issues (Head 1997; quoted in Head 2005:137). The recent natural resource management (NRM) experience provides evidence of how governments and NGOs can move towards more constructive partnerships to address long term environmental and natural

resources issues (ibid). These days the Governments are encouraging community participation for developing plans and schemes for the management of natural resources. Craig and Vanclay (2005:155) explain that such participation mostly involves a range of stakeholders who jointly address the different issues. They further illustrate that the major argument in favour of using such approach helps to develop the policies which will be more legitimate and will be more readily accepted by stakeholders. The educational institutions are being more responsible in promoting and including the curriculum in relation to the environment. Even more the local people are also being aware of the facts of resources and its importance in their life. This is further helping them to come up with new ways of conserving and managing their environment.

The resources are an important aspect of our lives. It provides us with the basic necessities and without whose existence life is just impossible. The resource degradation can bring along food insecurities, loss of life, economic loss and mostly a threat to the whole ecosystem. So it is needed to manage the resources for our survival itself. Yet the challenges to the resource management are always there. With the increase in population and consumption, resource management has been a challenge for the world. It needs proper planning, policies, participation of the local people and commitment to meet the goal. Meeting the basic needs and also conserving the resources is the biggest challenge. It is even more challenging for the people of rural areas whose life fully depends on the natural resources. Balancing one's life and even managing the resource is a challenge for them. Yet the level of challenges depends upon the regional area. Socio, economic, and geographical issues shape natural resource challenges in the region (The World Bank 2000). A strategy focused on poverty reduction and economic growth is needed to address natural resource management (ibid: 3).

The challenges of resource management are the sustainable management of the land and soil conservation, forests, water resources and mostly the climate change. Probably one of the greatest challenges for natural resource managers is to manage the resources in an integrated way as the degradation of one resource impacts on the other. The new wave of natural resource management is therefore 'integrated resource management' (IRM). This is a planning and decision making process that tries to involve resource use for its long term sustainable benefits and also to minimize conflicts among the resource users (Lyster et. al., 2007: 279). The challenge is the integration of proper planning and implementation of the policies and mostly the maximum level of participation by the community. Rising food and fuel prices, rapid globalization, climate change, and increasing competition between local people and corporate actors over scarce resources and agricultural land are a few of the many urgent challenges facing farmers and the others resource users in developing countries (German et.al. 2009:17).

Nepal's economy depends on the natural resources. Nepal is also a home to natural beauty which attracts thousands of tourists every year. The conservation areas, national parks, lakes have been one of the income source for the country. So the preservation of the resources is an important aspect. Acharya (1993) state that the farmers of Nepal are interested not only in crises management but also in strategic management. He states by giving an example of northern Gorkha in Nepal where the people manage their forests, pastures and crops with their own social initiatives.

Environmental problems in Nepal occur mostly because of natural, political and market forces. Acharya (1993) explains about the causes of environmental degradation in Nepal which are such like the ideas of modernization against the presence of indigenous structures, in regard to integration with the world market as opposed to introvert and closed economy, and of high and rapid economic growth in comparison to stability or gradual improvements. The

challenges of natural resource management in Nepal have been many. Firstly it has been poverty which influences the poor people to over exploit the natural resources. Secondly the instability of political situation, lack of government policies and specially lack of its implementation has been the greatest challenge. The absence of proper monitoring level has also presented a challenge to the country. The inequitable distribution of resources, gender differences, power relations, lack of experienced manpower, inadequate transfer of technologies, lack of research programs, market inefficiency, lack of infrastructure, lack of coordination, insufficient investment, corruption, conflicts are many of the challenges that the country has to undertake in the preservation of the natural resources.

4.2 Forest and Land in Nepal

The natural resources of Nepal mainly consists of its fertile land resources, forest, water resources and some of its natural places which is very important for the people and the country itself as much of the country's economy depends on the income of these resources. Forest resources are equally important for them, as it provides them with the basic necessities of their lives. In non-industrial regions, trees are inextricably woven into the rural and household economies. They are used to provide fuel, fodder and food. They supply medicines and shade, increased soil fertility, shelter from the wind and protection from the rain (UNFAO 1991: 67). So these resources are very important for the people. With the increase in population, globalization, the resources have been challenged. So as for the rural people of Nepal it has been a great challenge to maintain their lives and also to preserve the resources.

The land use category of Nepal has been presented in the following table. The maximum percentage of the land has been occupied by the forest (40.4) while 27.5 percentage of the land has been under cultivation. While the rest of the lands has been as shrub land, grassland or non-cultivated areas.

Land use category	Percent
Cultivated	27.5
Non cultivated inclusion	15
Grassland	6.6
Forested land	40.4
Shrub land	9.2
Others	1.3

Table 3: Land use in the hills and the middle mountains (Acharya 1993:28)

Land is a very important resource for the human being. We get all our basic needs from it, foods, clothing, housing and also obtain a social prestige and identity in the society. Man has made life out of the land and his continuous existence depends on the land itself. Soil degradation and loss of soil fertility thus leads to the decline of the agricultural productivity with inefficient production of the crops (Peters and Fresco 1995: 65). Land and agriculture have played a great role in Nepal's social, economic and political life through the centuries. Land therefore has traditionally been the form of wealth, the symbol of social status and the main source of economic and political power (Regmi 1976:1).

Today approximately 80 per cent of the population depends on agriculture for subsistence (Timsina and Ojha 2008: 23). Most of the area of the country consists of forests, alpine and snow-clad terrain and rivers along with settlements thus much of the land is not available for agricultural use (Regmi 1976: 4). More than one fourth of the land is under cultivation. The cultivated area has increased gradually. Until the 1980s the production of food crops was either stable or was declining but recently it has started to grow. Productivity of some agricultural crops has declined while that of others has increased or remains stable. The choice of crops, systems of land use, and the management of irrigation schemes have also been changed. The occasional agricultural production decline, especially in food grains is mostly by the outcome of bad

weather rather than by the reduction of soil quality (Acharya 1993). Acharya (1993) further gives the characteristics of the agricultural technologies that are adopted with their own innovation by the Nepalese farmers of the hills which are as follows.

1. They mostly rely on internal resources of the farm such as seeds, fertilizer (compost, green manure, mulching, in situ manuring), water, labor and technology.
2. They specify on diversification rather than specialization in production which are mostly with leguminous varieties that are intercropped.
3. They follow an integrated approach in the management of natural resources particularly in forest, pasture, fallow land, agricultural land and water. Its effects are economical (recycling), synergetic and reinforcing.
4. They have their own social institutions for the management of resources, the regulation of their use, and the transfer of knowledge, experience and technology. The management of the resources such as the use of forests, rotation of pastures, movements of herds and the choice of crops are decided communally even though the production is on a household basis (ibid: 32-33).

Increasing dependency on pesticides and their inappropriate use by the farmers have caused bad effects on both the environment and human health. Though at the aggregate level, the country seems to be self sufficient in food production, 55 districts are still food deficit. In hilly areas, food related problems have become difficult owing to the problems of transportation and uncompetitive markets. Agricultural commercialization has not occurred as intended (NPC 2007: 142). In comparison to Terai, Nepal's hilly areas and the Himalayas have not been much developed and it lacks the basic infrastructures like the roads and the electricity. This has distanced the population from development and technologies.

Nepal has forest coverage of 14.7 million hectares (Bajracharya 1993: 46). According to Bajracharya (1993) the forest is a complex renewable natural resource. He thus provides the two characteristics for its complexity. The first is that a forest is composed of a number of ecosystem components such as land, soil, water, flora and fauna, none of which is simple in nature. The second characteristics are that these components interact among themselves as well as with the physical environmental and socio-economic systems in a very complex manner. Forest is an important resource for the human beings as well as for the other living organisms. It provides us with the fuel, fodder, wild foods, medicines, recreations and many more. Forest is also a home to hundreds of wild animals.

Nepal had a famous saying '*hariyo ban Nepal ko dhan*' meaning the forests is the treasure of Nepal. Only a few decades ago timber and other forest products used to be the main item of export from Nepal. But due to lack of vision, poor planning and haphazard execution, the country is at present in shortage of these products (Bajracharya 1993: 54). Still not much has been harmed yet and there are still ways to preserve the forests of Nepal. Even in a small country like Nepal there are many kinds of forests and natural vegetations ranging from tropical through subtropical to temperate and alpine types-all due to the altitudinal differences ranging from about 150 meters above sea level in the south to the high Himalayas ranges in the north (Bajracharya 1993: 44).

The forest and shrub cover about half of the area in the hills and the middle mountains (Acharya 1993:26). According to Acharya (1993) recently quite a large numbers of trees have been added in the private lands of the people. He further relates to the study conducted by Carter and Gilmour (1989) who compared the 1964 map data with on ground counts in 1988 in two hill districts. They found that there had been an increase in the number of trees in per hectare basis by 347 percent and the forest coverage had increased by 6500 hectare in these two districts over the last 24 year period. Yet in the parts of

Terai, deforestation has been a problem. Illegal logging and export to the neighboring countries has been causing the forests to degrade. Bajracharya (1993) explains that the forestry sector in Nepal share a relation to other sectors of the national economy. The most close link lies with the energy sector as 78% of all energy consumed in Nepal comes from fuel wood and besides meeting the basic household needs, large number of people of the rural areas have their income from the forest products.

4.3 Community Forests in Nepal

Community forest is the forests that are managed by the local community that was introduced in Nepal for the welfare of both the people and the country. According to Paudel (2003: 63) Community Forestry Development Program (CFDP) is a major program of the forestry sector of the country and the main objective behind the introduction of the community forestry is to meet the basic needs of the local people especially of fuel wood and timber, through a sustainable management of the forest. Acharya (2002:149) states that the period from 1978 to the present can be considered as the community forestry phase that began with the process of review of the forestry sector and thus the understanding of relationship between the population and the natural resources of Nepal was established. The government of Nepal nationalized the private and communally owned forests and brought them under its ownership in the year 1957. This act of nationalization of forests stirred many owners and users of forests to turn the forested land to agricultural land to avoid losing access of the land (Adhikari 2004). Acharya (2002) state that prior to 1957 villagers managed their forest to meet local demands of fuel, fodder, poles and timber. Fisher (1991, 1990); Gilmour (1991); Gautam (1987); quoted in Acharya (2002: 149) explain that the management system of the various resources was based on their indigenous practices and these practices were locally developed and were regularly revised.

After the forests were nationalized it is generally believed that heavy deforestation occurred in the following the years because people felt that their forest had been taken away from them and had lost access to them (Gilmor, King and Hobley 1989; World Bank 1978; quoted in Acharya 2002). Slowly the government felt the need that local communities had to be involved in order to sustain forests. In 1982, the Community Forestry Legislation and Decentralization Act passed and the government made Plans to increase the people's forestry rights. Nepal gained democracy in 1990 and the elected government made a way in 1993 to hand over forest management rights to forest users group (FUGs). At present almost half of the community forests in Nepal are managed through some 11000 users group and the government is taking more initiation to give away the forests into the hands of the potential communities (Adhikari 2004). According to Buchy and Rai (2008) community forestry is now operating in all 75 of Nepal's districts and has received priority support both from the state and donors.

The community forests have established rights and responsibilities over the use of the forests by the users group. The different rights have been listed below (Source Adhikari 2004).

1. Users reserve the right to form FUGs.
2. Users identify traditional users of forests and provide membership to new entrants under certain conditions.
3. Operational rules on protection, utilization and infractions are made by FUGs.
4. Users can enter community forests as per rules.
5. Users can harvest predefined types and units of forests products.
6. FUGs can price forests products irrespective of government royalty and use funds for community development. Cash crops can be planted without disturbing the main forestry species.

7. Users cannot sell/lease/share of rights to other users or sell their private sell of produce.

The different responsibilities are as below.

1. Users pay a membership fee and contribute to paying a guard.
2. Users have to participate in monthly meetings.
3. A small fee is payable for some forests products.
4. Users are expected to participate in obligatory community activities such as tree planting, thinning, pruning etc.

(Source: Adhikari 2004)

Acharya (2002) concludes that community forestry is the main strategy in Nepal's forestry sector and during the past 24 years many changes in policy and legislation have done so as to empower users as the better managers of the forests. He further states that the programme is successful in increasing the planting of degraded sites, in forming local level institutions for resource management, in increasing the biodiversity, in improving the supply of forest products to farmers and in improving the environmental situation in the hills of Nepal. By the end of Tenth Plan period, users' groups have managed 1.24 million hectares of forest area. The government of Nepal has also made reforms not only in the quantity but also in the quality of community forests (NPC 2007: 189).

4.4 Kipat System

Prior to the nationalization of the forests by the government of Nepal, Limbu had their own system of management. This used to be known as kipat sytem. It was a communal form of resource management. Under the kipat system a certain area consisting of land, forests, rivers, streams were under the communal holding of the Limbu community. They would communally manage all of these resources. As per Regmi (1976: 87) the kipat system may have been a customary form of land control by the mongoloid or autochthonous tribal

communities, in areas occupied by them before the immigration of racial groups of Indo-Aryan origin. He further explains the rights in regard to the khat tenure which emerged not because of a royal grant, but belonging as a member to a particular ethnic community. Moreover in regard to taxes for the khat lands, it was only meant for the homesteads and the rice lands were to be tax free (ibid: 91). The khat system also prevented the government from establishing its administrative control over the whole of its territory (ibid: 92). They had a *jimmawal* (the Limbu chief) who acted as the headmen of the village and who was also responsible for collecting tax and looking over the resources.

Yet in the mid of twentieth century, the khat system had many defects and deficiency especially in the context of national finance and economic development. Regmi (1976: 101) state that the khat owners paid a fixed sum of money as tax, irrespective of their area or other land in their possession. Thus it was mainly an economic loss to the government. It was basically seen as a form of governance and autonomy by the Limbu community. The end of Rana regime in 1951 changed the foundations of communal character of the khat system of land ownership¹ (ibid: 102).

The characteristics of khat system such as communal privilege, regressive taxation and tenurial insecurity conflicted with the need of the whole society for social and economic change. According to Regmi (1976: 102) a form of land ownership that benefitted only one section of the local population somehow prevented inter-communal integration and at a time when the national goal was to improve the social and economic development, persistence on traditional rights by some communities seemed to be an anachronism. The new governments established during 1960s which called in for the land reform

¹ The Ranas ruled over Nepal for nearly 105 years. They governed the nation and occupied the major positions in the country while the king was only represented as the figurehead.

Act took away the khat system. The government left behind only the cultivated land for them and integrated all the communal holdings of land under the government ownership. Though legally the khat system has been abolished yet the people in some villages in Nepal still believe in the khat holdings. They still believe that the forests and lands belong to them and some *jimmawal* though having lost their power, still have some influence in the decision making process.

4.5 Government Policies on Forest and Land management in Nepal

The government of Nepal has developed certain policies in order to protect the land and forests of the nation. The National Planning Commission of Nepal has developed Three Years Interim Plan (2007/8-2009/10). The main goal of this Interim Plan is to lay a foundation for economic and social transformation to build a Prosperous, Modern and Just Nepal (NPC 2007: 26). The long term objectives of the government of Nepal for forest and soil conservation is to supply timber, fuel wood, fodder and other forest products regularly and to provide a sustainable forest development program by encouraging people's participation, to increase food production by the interaction of forests and agriculture field, and also to preserve the country lands the environmental damages like from landslides, floods and desertification (ibid: 192).

Timsina and Ojha (2008) state as the government realized the importance of agriculture as a means of livelihood for most of the population thus it developed the plans in the agriculture sector in the 1950s. The Technological inputs like introducing improved varieties of crops and their trials were the first act in agricultural field. The government of Nepal had developed the Agriculture Perspective Plan (APP) in 1995. The objectives of APP were to alleviate poverty and to specially include rural poor women in that process through agricultural interventions. They further explain that it was an action plan that identified four key priority areas of input and output. These priority inputs included irrigation, fertiliser, technology, roads and

power and priority outputs included livestock, high value crops, agribusiness and forestry (APP 1995; JMA and APROSC 1998 ; quoted in Timsina and Ojha 2008: 23-24). According to them the Agricultural Policy of 2004 further stated the importance of agriculture for poverty alleviation in Nepal. Nepal Agricultural Research Council (NARC) has been the main institution to carry out research activities in the field of agriculture and also in developing the agro-technologies.

Some of the policies in regard to forest and soil conservation developed by the government have been listed below.

Policies:

- All the programs of the forestry sector will be encouraged to operate through groups. Forests will be handed over with due process according to the aspiration and capability of the users' groups of the forest area traditionally located near the settlement. This process will be made easy, simple and transparent by the formation of all party committees at the local level and their active involvement thereafter.
- Arrangements will be made to proportionately utilize at least 35 percent of the total income of community forests for the upliftment of the poor classes of the relevant groups. To ensure this and make it transparent, regular monitoring will be carried out with the development of all-party consensus comprising of all groups/castes of the same community.
- A fixed share of revenue earned in government managed forests will be utilized for the upliftment of the poor.
- Advocacy will be made in the international arena on securing resources according to the contribution made by Nepal to the global environment. The environmental services and benefits accrued so forth will be invested for poverty reduction, forests conservation and promotion.

- Infrastructure will be developed for nature conservation oriented community tourism.
- A long-term plan will be formulated and implemented with the active participation of all the stakeholders for the development of herbs, forage and other forest related products in the high hill forests.
- Role of the local communities will be increased in the management of protected areas.
- Integrated program will be implemented comprising of forests, agriculture, soil and water conservation, environment and allied areas.
- Existing structures of the forest sector will be improved to make the supply of forest products including timber and fodder simple, readily available and transparent.
- The private sector will be encouraged to develop forests in the private sector by simplifying the process of selling tree and forest products of private land.
- Alternative energy management will be supported, by producing briquettes and other materials from locally available forests products. Employment opportunity will be provided to the poor women, by enhancing their skills by providing training, technology and equipment with priority.
- Soil and watershed management program will be expanded and service will be rendered throughout the country through the basin approach in order to enhance the productivity of land and maintain soil fertility as well as to check floods and soil erosion. Similarly, programs will be effectively carried out coordinating the basin approach and the provision of local self-governance approach.
- An Emergency Natural Disaster Relief Fund will be established in the departmental level for immediately addressing natural disasters such as floods and landslides.

- Study, research and survey works will be conducted for the development of forests, plants, and wildlife and watershed management. Participatory process will be adopted as and when appropriate in carrying out these types of study, action research and survey programs.
- Modern and successful technology and processes adopted by different persons, groups, entrepreneurs, professionals and researchers will be utilized and implemented by focusing on production, processing and marketing of products with a comparative and competitive advantage.
- Support will be provided to men and women of the poor class families by involving them in forest related micro entrepreneurship.
- Membership of one male and one female from every household of the community will be ensured in the existing forest related groups and new groups to be formed. Similarly, a provision will be made to proportionately represent all the economic classes including ethnic groups and sex while forming executive committees.
- Involvement of the private sector will be encouraged to establish and ensure quality of Nepali products in the world market by identifying exportable forest products having comparative and competitive advantage.
- Participatory monitoring and evaluation program will be developed and effectively implemented.
- Special program will be implemented for the conservation, management and promotion of herbs and wildlife for the people of high hills.

(Source: NPC 2007)²

² For more details regarding the policies see the Three Years Interim Plan of Nepal (2007/08-2009/10).

CHAPTER 5

RESULTS AND DISCUSSION

This chapter shall discuss the overall findings of the research. It shall deal with the land and forest use by the people in the village. The agricultural pattern, the use of the land and the forest, different fertilizers used by the farmers shall be discussed. It shall also further relate on the livestock of the villagers. The different cultural and religious practices, role of gender in resource management and their communal management approach and further the role of government and NGOs shall be dealt in this chapter.

5.1 Agricultural Cropping Pattern

According to Davidson et al. (1992) agriculture changes the ecological systems for humans to meet the needs for food, fuel, fodder and fibre by encouraging the production of certain species of plants and animals. For some people agriculture is the only means of survival. Nepal is said to be an agricultural country where more than 80 percent of the population depend on agriculture for their livelihood. The study found that people in the village still practice traditional farming system. They use the resources that are locally available and implement their local knowledge regarding the farming system. Their staple foods are rice, maize and millet. The crops are grown on the subsistence basis while only the surplus crops are sold in the market. They spend most of the months in the agricultural field except for few days which is taken for rest and is an important part of their life.

The major crops grown were rice, maize and millet. The rice was grown in the lowland owing to the fact that it is a wet season crop and is grown during the monsoon time. They have also arranged for the irrigation facility to meet the water scarcity if the rain does not come in time. The different crops have been planted according to the ecological patterns of the village. The dry crops such as millet and maize have been planted in the upland while the wet crops like

rice have been are planted in the low land. The upland is mostly brought into use than the lowland. The reason is it is near to home which gives them the way to plant many plants and vegetables. In the upland they mostly practice inter-cropping or mixed cropping. It is the practice of growing two or more crops in the same field at the same time. Maize and millet were found to be mostly intercropped. Soybeans were also intercropped with maize and millet. The nitrogen content of soybean is high which helps to increase the production of the crops.

The intercropping mainly helps to maintain the soil fertility. Soybeans they improve both nutrition and the environment. With 40 percent protein content, these legumes fix nitrogen from the air and produce good yields without fertilizer-often double the yield of local beans (Dankelman and Davidson 1991:21). Intercropping has also led to the best utilization of the land. Orange trees and the fodder trees were found to be planted near the belts of the terraces which have helped to preserve the soil from eroding. *Amliso* (bouquet grass) were found to be specially planted in the slopes of the land whereby it has helped in the conservation of the soil and preventing it from landslides. Large number of bamboos was planted on the slopes and these further prevented the soil from eroding and helped in preservation.

It was found that millet was grown by all of the households because of its religious and cultural values. The people make *jaad* (local beer) and *rakshi* (wine) out of millet which are frequently used in their household and even during some *puja* (ritual offering). Only a little amount of millet was used as food while the maximum amount was used in making *jaad* and *rakshi*. Maize, millet and all the vegetables were grown in the upland area of the village.

The figure 5 shows the seasonal calendar of the people. There are twelve months in a Nepali calendar. Maize is grown in the beginning of the year and the harvesting is done in the month of Bhadra (August/September). It is one of the staple foods for them and also for their livestock. Its grains are consumed

by the poultry while the leaves are consumed by goat, cow and ox. Millet one of the important crop is grown in the month of Jestha (May/June) and some even plant them in the month of Ashad (June/July) and the harvesting is done in the month of Kartik (October/November). In between the months they also grow the vegetables in the upland area near to their house. The last months of the year was also used for planting different winter vegetables. The different kinds of vegetables grown are tomatoes, cucumber, chili, ribbed gourd (*Luffa acutangula*, Linn), bitter gourd (*Momordica charantia*), potato and so on. The citrus fruits are also grown. It was seen that all of the basic foods requirements were met from their own land.

Figure 5: Seasonal calendar of the farmers

production would be 60 kg. Different household had a different level of production per year. Some of the households focused more on maize while some of them on millet. Four households were found who did not produce rice at all. The lack of land holdings barred them from cultivating the rice. They bought the rice and concentrated more on maize and millet production. Yet all of the households produced millet and maize. It was only 2 households who sometimes faced food deficit. The deficit in the production was met by buying them from the market. The food deficit was mainly owing to crop failure brought in by bad weather and lack of rainfall. The use of hybrid seeds was found to be of minimal. At present the most used hybrid seed was of tomatoes. These days the villagers found it very hard to find the original seed of the tomatoes. Some of the people feared that the continuous use of hybrid seeds might displace the original ones and lose them forever.

The fruits are the next important crop for them. The yields of the fruit trees are important for the villagers as they provide them with the income for the household. One of the important fruit, orange is planted during Jestha (May/June) and harvested during Kartik (October/November). The details regarding the yields of the fruit trees have been mentioned in the economy section of chapter three.

5.2 Land and Soil Management

Davidson et.al (1992: 57) specify that land means self respect and security further it is a means for poor people for their survival. For the rural people in Nepal agriculture is an important aspect for their livelihood. So maintaining the soil and its fertility is necessary and is a known fact to the village people. Since generations they have been living in that land and earning their livelihood from it. The villagers have realized the fact that their coming generations will need a sustainable and productive soil to make a living. A 52 year old key informant Balnanda quoted that “Land has its strength because it has its production capacity and gives us a way to survive”.

Life is hard in the hilly areas with a difficult topography. Thus the people have built terraces in the steep slopes in order to retain the water and prevent from soil erosion. According to Subba (1999) the royal decree issued from the Rabdentse Palace by Tensung Namgyal to the Limbus in 1685 (translated by Ringu Tulku, a well known Tibetologist) clearly shows that the Limbus knew terrace cultivation about one hundred years before the ‘unification’ of Nepal. The belts of the terraces have been utilized by planting orange trees and other vegetation. The lands have been divided into upland and lowland and the crops and vegetables have been planted accordingly. In a way the land has been utilized in its maximum form as every part of the land has been utilized.

Intercropping was found to be a common practice in the village. Wilken (1987) state that farmers have known for long time that certain plants improve soil conditions and increase yields of companion crops, and thus they plant accordingly. The intercropping of various crops and vegetables by the villagers has helped in the retention of soil and its fertility. There are many advantages of intercropping like the mixture of crops on one plot of land provides a cover of plants for soil and further protects it from erosion by heavy rainfall and winds. Plus the availability of soil moisture and nutrients are utilized as different plants tend to have different requirements and have their roots at varying depths (Zeleza 1993:87). Intercropping has been practiced in the developing countries of Central America, Asia and Africa (Allen and Obura, 1983, Altier and Liebman1994, Bekunda and Woomer, 1996 1999, Grossman and Qualles1993, Henzel andVallis1977, Jodha, 1979, Prabhakar et al, 1983). The advantages of intercropping are risk minimization, effective use of available resources, efficient use of labour, increased crop productivity, erosion control and food security (Bekunda and Woomer, 1996, 1999, Jodha1979, Owuor et al,2002; quoted in Ouma and P 2010).

The organic fertilizer was found to be used by the maximum number of the household. There had been a minimal use of the chemical fertilizers. Only 10%

(4 HH) were found to be using the chemical fertilizers but they still mixed it with the organic one. The chemical fertilizer was only used when they did not have the sufficient amount of the organic fertilizer. They felt that they had no other option but to use the inorganic fertilizer to meet their demands. The organic fertilizer they commonly used was the animal manures from pigs, cow, goats and ox. Urea and Diammonium phosphate (DAP) was the regular inorganic fertilizer they used. There was a time in the village when people immensely used them. Slowly people experienced that with the long term use and over use of inorganic fertilizers the soil had been damaged and had lost its fertility. With this realization some of the people had completely stopped its use. The villagers shared that the inorganic fertilizers hardened the soil and thus lumps of soils were formed. This brought the difficulty in the plant's growth and was even hard to arrange the land for cultivation. So they preferred to use organic fertilizers for their soil. The overuse of the inorganic fertilizers reduces the production capacity of the soil because these fertilizers contain high rate of nitrogen and when farmers overuse or misuse these fertilizers, the high or low nitrogen content damages the production capacity of the soil. It further makes the soil lose its nutrients, water holding capacities and its ability to fix nitrogen in the soil.

The other reason why some people did not prefer to use the inorganic fertilizer was owing to its cost. They found it expensive to buy so organic fertilizer was preferred most in terms of its cost and its advantages. Compost was also found to have been made and used in the field. Yet it was only two Households who used the compost. It was in the house of the respondents where the school going children were taught to make the compost in their school. Children attending the secondary level education were usually taught to make the compost thus they had applied it in their home. Another way to fertilize the land was after the harvesting was done the cattle were let out in the fields to graze and their manures would act as the fertilizers.

People still use traditional technology and simple tools for their agricultural activities. Simple wooden agricultural tools were used like *halo* (plow), *kodalo* (spade), *kuto* (small spade) etc. The traditional wooden tools and simple technologies are still used in the hills and mountains of Nepal. Due to the lack of proper infrastructure (viz. road networks and electricity) and narrow terrace cultivation in hilly areas thus agriculture is mainly reliant on human and animal power (Manandhar 2009:2). Tillage was carried out to prepare for the agricultural cultivation. People in the village used wooden shaft like *kodalo* and oxen in *halo* to till the land. Oxen are still used in many countries especially in developing ones and they are easily trained and are used for simple pulling works where they can put the needed power even though their speed tend to be slow. The formation of the ox's neck and shoulder is such that it allows pulling an implement through ropes or chains attached to an uncomplicated yoke which is very much simple than the harness that is used to transmit the pulling power of a horse (Blandford 1976: 16)

5.3 Livestock

Livestock is an essential provider of many necessities such as food, clothing, manure, medium to plough the land and in some part of the world it is also a sign of social prestige especially in the villages. In Maunabuthuk village, owning a livestock was important for them. They were a part of their everyday life. The different livestock provided them with milk, butter, fertilizers and sometimes also gave them money by selling them. The feces of goat, cow, ox, pig were the ones which were used to fertilize their land. The cow dung was also used to clean the house. The rich people owned more livestock while the poor owned few only to meet their basic needs. Besides, livestock has its own religious and cultural values for the Limbu people. They frequently use them while making offerings to their deities and in different rituals and ceremonies. Those who could afford were the ones who had cow and ox. The most common livestock seen was goat, chicken and pig.

Figure 4 illustrates the percentage of different livestock that were owned by the different households. It was found that all most all of the household had chicken. It was 98% of the household who owned chicken. Among different livestock they had, owing chickens was very important for the Limbu household. Making an offering of chicken was the most prevalent in their rituals. Even if the household did not possess they would buy or lend out to complete their offerings. Pig was owned by the 75% of the household. For Limbu people it was a culture to own a pig. The kitchen wastes would be the food for the pigs while the wastes of the pig were used in the field. Its meat would also earn them money. Pigs were also made offerings to their deities but only in big rituals and by those who could afford to do so. It was only two households having the ox. The reason was also that it was expensive to buy and not everybody could afford it. So when the people were in need of the ox to plough their field they would borrow and pay for it.

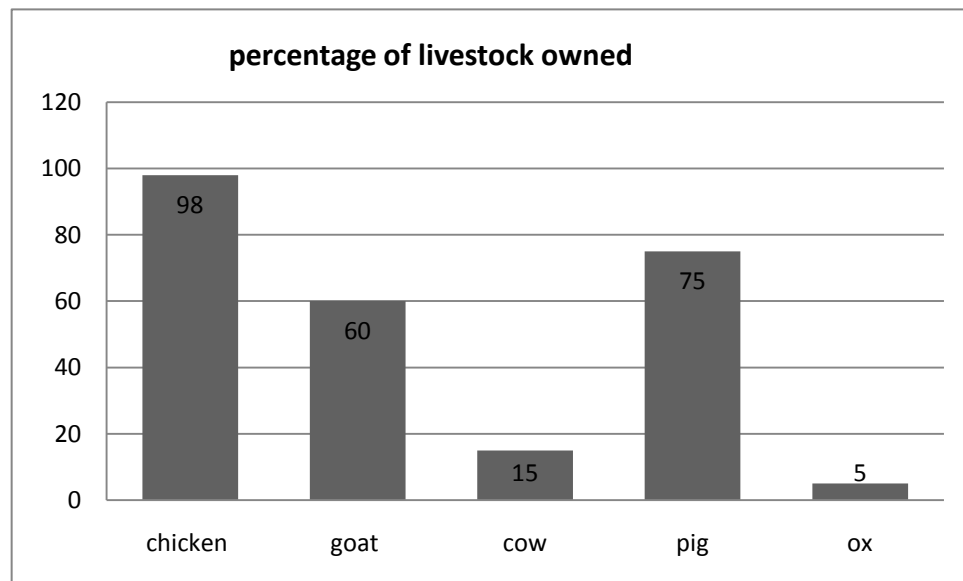


Figure 6: Percentage of livestock owned by the Households

Lately there was a change in the number of livestock people owned. They had minimized the cattle farming. More cattle meant taking them often to the grazing land. Soon they realized that with more cattle being in the grazing land, the continuous trampling of the land by the cattle would loosen the soil and

make them fragile. So there were more chances of soil erosion and getting landslides. With the communal decision of the village, they decided not to take the cattle on the grazing land. The only time when the animals are left for grazing is after harvesting and also in their own land. All the needed fodder for the livestock is managed privately by the people. There also laid the other reason to minimize the number of the cattle in the village. These days the villagers were aware regarding the importance of education for their children. So they sent their children to the school which left them with no one to take the cattle for grazing unlike in old days the children were responsible for this job.

5.4 Forest

Forest is not just a home to hundreds of species and wild animals it also plays an important role in maintaining life on earth and its ecosystem. Alcorn (1996) cited in Danniggelis (1997) quote that forest users have long used forests plants, buried their ancestors in these forests and named the hills, rivers and valleys where forests are found. According to Davidson et.al (1992) indigenous people know how to use forests productively and sustainably: their farming methods improve forest soils and they use thousands of plant species as medicines and food, and for building and craftwork. Forest was seen to be important to the people of the village. The VDC had a total of eight community forests and the village had one community forest, a reserved forest and the people also owned their private forest.

5.4.1 Community Forest

It was in the year 2001 Maunabuthuk first had the community forest in the village. The village's community forest occupies the area of 34 hectares. The community forest consists of Community Forests Users Group (CFUGs). One member of the household represents in the CFUGs and they have to pay a certain amount of fee which was only Nrs 10. The membership fee was found to be very low so as that everyone in the community could participate in the CFUGs. The membership fee was collected every once in a year. The users

group then appoints a CFUGs committee. The CFUGs is a group of certain people who are responsible for the management of the forests and takes up all the responsibilities regarding the decision making of the forests. The structure and organization of the CFUGs differ from place to place. The village had one CFUGs where there were a total of thirteen members and four of them were found to be female. Among the thirteen members eleven of them were from the Limbu community.

The key respondent Dhan Bahadur Limbu explained that the members for the committee in CFUGs had been selected on mutual understanding among the villagers. The ones who were more liable and could be trusted were the ones who were mostly recommended in the users group. When doing so they would also keep in mind to include people from all section and also to include women. Only if someone opposed the nomination of the certain members then they thought of holding the voting system and till date they had not held any voting to elect the members. The formed committee then made certain rules and constitution for the management of their forests. They hold the meetings once a month where they put on every discussion for the better management of the forest. The discussions made are regarding the proper allocation of the budget, allocation of fuel wood to the people and all the things related to the forest management.

Community forest in Nepal is aimed at increasing the livelihood of the people. The benefits from the forests are fuel wood, fodder, medicinal plants, collecting the leaf litter etc. The income from the forests comes through selling of certain forests products, membership fees, fines etc. The village's income from the community forests in a year ranged from Nrs 20000- 25000. The income from the forests are used in the development of the village. Till date the villagers had shared the benefits in the development of school, road, and drinking water and also paying for the forest guard. The whole decision regarding the allocation of the budget is made by the CFUGs committee. It was also found that the users

group organizes a *ghumti toli* which is a group of certain people who roam around in the village to gather the perspectives of the villagers regarding the management of the forests. All of the eight community forest in the VDC had a common network where they shared their views and plan accordingly for the better management of the forests. They held their meetings as per their needs and usually it was held once in a month.

The common trees found in the community forests were *salla*, *katus*, *khair* and *chilaune*. The most common wild animals found in the forests were kaliz, monkeys, rabbits and porcupine. Sometimes the wild animals destroyed the villagers' crop specially the monkeys. Tired of losing their crops to the wild animals sometimes they hunted them down or even caught them specially the monkeys and kept them at their home.

The forest was made access to people once in a year. The people could cut down certain amount and species of trees. Limited amount of fuel wood and fodder were then distributed among the villagers for which they had to pay a price. Each household would get the fuel wood from 100 kilogram to 2000 kilogram. The price for the fuel wood was NRs 25 per 100 kilogram. While at the other times the forests was closed and no one was allowed to enter. They had to pay a penalty if they were caught. Yet it was found that some of the villagers would enter and take away the fuel wood and violate their existing laws. In regard to this, one of the respondent representing the household where qualitative study was undertaken shared '*jas ko shakti usai ko bhakti*' meaning the one who has the power is the one who controls. She further elaborated that the ones who had more power were the ones sneaking into the forest. She explained that these were the people in the village who had more decision making power or influenced people some way or the other. People were afraid to point fingers at them so they could not control the illegal acts. The local people viewed that the lack of unity among the local people is also the reason why they have not been able to control the illegal entry into the forests. While

it was learnt that not only the ones who had more power entered the forests but also the poor section of the society did the same. The poverty and the lack of purchasing power led them to do the misconduct in the forests.

However, there seemed to be a contradiction of views between the two key informants. One of the key informant shared that there has been illegal acts going in the forests while the other key informant Dhan Bahadur Limbu defended that the illegal entry into the forests all depended on how strong the CFUGs are. He further stated that though at some point there had been some misconduct in the forest, yet they have been quick and strong enough to stop such illegal acts. Yet it was learnt that the misconduct was still going on in the forest. It was hard to control the illegal entrance into the forests. It was especially done during the night time and a single guard could not do much about it. Almost all of the people in the village were satisfied with the upcoming of the community forests. The forests had been preserved to some level while the illegal entry and cutting down of the trees was something they could hardly control.

5.4.2 Reserved Forest

Reserved forest, locally known as *jagada ban* came into existence in the village in the year 2004. It is a forest which is reserved by the local community by providing preservation to the certain areas and is also known as preserved forest. In a way reserved forests can also be said as a religious or cultural forest. The main intension behind its formation is to preserve the forests and the other species. The history behind the establishment of the reserve forest in the village was, it once used to be a graveyard. It was specifically a graveyard only meant for the Limbu community. It was the area their forefathers had been using it from generations. The area had its own emotional attachment for the Limbu community. So it was from the initiation of Dhan Bahadur Limbu, the reserved forest was formed. The area was thought to be protected since their forefathers had been buried there and with time the trees were being cut down

and the forests started thinning. So with his initiative and support from the other Limbu household they formed the forest. They then decided to preserve it and stopped the people from cutting down the trees of the area. This was how the reserved forest was established by the Limbu people in the village. The area of the forest expands over 10 hectares.

The trees that are found are *katus* and *salla*. These trees are completely banned from cutting and only the small twigs, dried woods and some small amount of fodder are allowed to gather once in a while and the people do not have to pay for them. The reserved forest has its committee who work around to manage the forest. The people do not have to pay a membership fee to be a member of the forest. All the Limbu people in the village are entitled to its protection and preservation. It is the forest that is totally maintained only by the Limbu community unlike in community forest where the non-Limbu were also involved.

5.4.3 Private Forests

Private forests are those which are owned privately by the household or the individual. The demand for the fuel wood was not met by the community forest and the reserved forests. They had food to cook and livestock to feed. The household then had to develop the other alternative to meet their demands. Thus the private forests were set up by the individual household. The study found that 67% (28 HH) owned the private forests. The forests were established only when the household felt that they had some few area to spare for the forests. Large amount of firewood were consumed by the households in cooking *jad* and *rakshi* which is an important part of their life and culture. None of the house was found without having the alcohols at their home. It was a common culture to welcome a guest with one. They were served at any hour of the day or night. The process of making these alcohols were passed down from generations. The mother would pass it to her daughter and so it went on to the other generation. It was seen that the alcohol culture consumed a huge

amount of firewood. Fuel wood was also found to be consumed for cooking the foods for the livestock especially for the pigs. Besides they had not adopted the alternatives for the use of fuel wood. Though kerosene has been somewhat popular among the poor households in Nepal these days, yet the rural people still prefer to use the fuel wood because of its cost and its availability. According to one of the respondent:

‘It is good that community forest is here. Through this, the forests have been preserved but we cannot collect the fire wood and fodder as we wished. We had to meet our demands and we need to survive. That was why we created our own private forests.’

The minimum amount of land holding a household had was of 5 ropani (0.16 hectare) and the maximum amount of land a household had was of 100 ropani (3 hectares). Yet it was only few number of households who owned a land of 3 hectares. More than 50% of the household owned the land holding of 15-20 ropani (0.66 hectare). Forest was important to the villagers. Each and everyone made use of the forest. The forests is not just a source of fuel wood and fodder for the people, it was also a source of wild foods. The study found that 45% (19 HH) visited their private forest everyday while the rest visited as per their needs. The purpose of their visit was mostly for fuel and fodder. The wild foods they mostly collected were *sisnu* (stinging neetle) and *tarul* (yam). *Sisnu* were also found to be planted at their home gardens and even *tarul* were planted in their field and was consumed abundantly and was eaten in most of the festivals.

Concerning the usage of medicinal plants from the forests only one 74 years old respondent was found to have visited forest to collect them. He collected medicines to cure the animal’s broken bones and also to cure the fever. The respondent said that today most of the people were dependent on the hospitals and their medicines so many of them did not have any idea of the medicinal plants. The establishment of the private forest had increased the number of

trees and fodder trees in the village. It had led them to the habit of tree plantation.

5.5 Limbu Rituals and the Natural Resources

Limbu have been residing in the eastern hills of Nepal for a very long time. They started their life with agriculture and met their basic needs from the forests. The resources were used for survival and were also maintained by them. The resources are an important aspect of their life and thus share a close relation with them. Besides, Limbu are also known to be the nature worshipper. Their cultural and religious practices are mostly related to the nature. According to Dhan Bahadur Limbu, a key informant 'We are a nature worshipper. We worship land, forest, rivers and mountains. For us, our deities reside in these places.' Their most respected god is *Fatanagan*. The whole of their practices are guided by the *mundhum*. The word Mundhum means the power of great strength and the kirat people of east Nepal take it to be a true, holy and a powerful scripture (Chemjong 2003:18). Mundhum is not yet found in its written form. It is still in oral. The mundhum is like narrating a story and every occasion has its own mundhum, be it when the offerings are made to their god and goddesses or when a person is to be healed. It is recited by the Limbu shamans.

Limbu have a very firm belief in shamans and thus shamans play a very important part in their lives. Limbu shamanism rests on a firm belief that people's lives are inter linked to a world of supernatural beings and thus the world consists of numerous gods, goddesses, ghosts of the dead, and spirits associated with animals, plants, the forest and the home and other animate and inanimate objects of nature (Jones 1976: 29). Jones (1976) quotes that Limbu shamans on the other hand learn not only the arts and skills associated with magical curing and healing but the sacred Limbu oral traditions of the mundhum, sometimes called the Limbu 'vedas'. It was seen that people still had great belief in shamans. Fedangba was how they called the shamans. In the

village three Limbu shamans were found and in a way being a shaman is also a source of income. People provide them with money, rice and other food stuffs for their service they provide. Dhan Bahadur Limbu, a key informant retells a story that occurred in the village a while ago.

‘There was a man who was so sick with his mental illness. His families and relatives took him to the various hospitals in the city but showed no sign of improvement. Yet the patient would continuously tell them that no doctor would be able to cure him but only the fedangba. Finally with no hope left he was taken to the fedangba and through the rituals conducted by the fedangba, the sick person was fully cured’.

He further gives explanation regarding their beliefs.

“Religion and beliefs are those things that make people mentally strong. In Limbu fedangma has the great role to play. He/she is there to recite mundhum for various religious rites and make offerings to the different deities. This is done in order to protect our crops from the forest animals, to protect us from all enemies. Forest worshipping is our main practice. We also worship land so that it can be protected against landslides.”

(Dhan Bahadur Limbu)

They conduct different rituals related to the nature. According to Dhanmaya, a 55 year old female respondent, ‘Goddess resides there where there is water. So rivers are also worshipped by us’. Limbu built *chautara* (resting place) in the name of their deceased person. They planted *bar* and *pipal* trees near the *chautara* which provided shade to the travelers. According to Shrestha (2000) it is a common practice among the Rai and Limbu people to construct a stone *chautara* (rest-platform) and to plant pipal trees and bar trees to provide shelter and shade for way farers by the main trails in the village as a memorial to the dead. He states that such customs have contributed to preserving the tradition of tree planting. People believed that man had a special relationship with land and forest and they should be preserved. To them life was unsustainable

without it. Lakh Maya a 66 year old woman quotes “Soon I shall pass away but my grandchildren need the forest”.

All of the rituals are done in order to please the god, avoid them from misfortunes and bless their land and crops. The main cultural and religious practices conducted by Limbu in relation to nature are explained below.

a) Uvauli Puja

Uvauli puja also known as *Yakwa Tamnang* is one of the most important puja for the Limbu. It is done before the plantation of the crops. The purpose of the puja is to ask their god to bless their crops and land and protect it from the evils. It is carried out in the month of Baisakh and Jestha (April-June). The different offerings made are rice, chicken, eggs and pigs if people can afford it.

b) Udhauli Puja

It is similar to Uvauli puja. The only difference is that it is celebrated after the harvest of the crops. It is conducted in the month of Mangsir or Poush (November-January). It is also known as *Chasok Tamnang or Nyayoungi*. It is also said that the new year of Limbu begins from this time. The offerings made are pigs, chicken, crops and eggs. The offerings are made to thank their god for good crops and again bless them. They have a belief that if they eat before making any offerings than they might get sick or have misfortunes. Both of the rituals i.e. Uvauli and Udhauli are done in the communal form and also at the household level. When celebrated together, all the people gather and conduct the ritual. The Uvauli and Udhauli puja are celebrated as the biggest festival of Limbu people. They eat, dance and make merry during this time.

The festival also acts as a way to communicate between each other and clear the misunderstandings if they have any. The Limbu shaman recites mundhum and conduct the ritual for them. The ritual is also conducted in

the hope that they do not have any misfortunes for their crops and their lands be blessed. The shaman after reciting mundhum wishes all the people with prosperity and blesses their crops and land and the offerings made are swept away in the river. After the completion of the puja they believe that they are now protected from bad spirits and there shall be blessing and are again ready to do their agricultural activities. These rituals are also celebrated privately by some people at their home if they are not satisfied by the communal offerings. Udhauli and Uvauli are a way to show respect to the land and nature.

c) Saune Sankrati

Shrawan sankrati (*rake sankrati*) is celebrated in the month of shrawan. They eat drink and get merry. They celebrate it as a day to take rest. They don't work in their field and they believe that if they enter in their field then their crops might get destroyed.

d) Dhule Puja

This is the worship that is made for the land asking for the rain. They worship *Singha Devi* who is the goddess of the land. When people do not get any rain then they worship their deity asking for the rainfall and prevent them from drought. They offer chicken, pig and goats.

e) Devi puja

Forest worshipping is also very important for the Limbu. They have a forest deity known as '*Tangbungma*' and it is also called devi puja. They worship the whole of the forest. They offer chicken, pigeon and goat. The offering is done asking for the deity to help protect their crops from the wild animals and also provide them with the strength and avoid them from the misfortunes. When the trees are also cut down the forest deity is worshipped. It can be done before or after cutting down the trees.

The cultural and religious practices are important for Limbu. Most of the practices have been in relation to the nature where they worship the land,

forests and the crops. These different practices had been passed down from generations. It was found that most of the people continued to preserve their practices. When asked if Limbu are still practicing their cultural and religious practices, the key informant Balnanda Limbu replied 'That's what Limbu are'. He further explained that if they don't continue these practices then they no longer can be identified as Limbu. Their practices are their identity. It was seen that the beliefs and practices were still close to them.

The study found out that 95% (40 HH) still practiced their cultural and religious rites. The ones who did not practice the rites responded that they were tired of following their rituals and had no more beliefs in such systems. They viewed that nothing much was gained by following all these different rituals. The ones who still had beliefs in their practices had their own reasons in adopting those values and systems in their lives. It was found that 42% (18 HH) continued their practices because they feared they might have misfortunes in their lives. They felt that they might get sick or even might die if they do not continue their rituals and offerings were made to their deities. The 13% (6 HH) did it as a respect to their ancestors while 24% (10 HH) practiced their rituals as a duty. They viewed that since they had been following from ages so they did it so as to give a continuation to it. The 14% (6 HH) practiced since they had belief in their rituals. They believed that their practices brought them blessings and would get rid of all the misfortunes.

The two younger people who were interviewed shared that they did not have much belief towards their rituals and practices. They believed that living in this century meant they should not have such beliefs but adopt the modern ideas and thoughts. According to them their father's generations' beliefs and rituals had no use but were conservative. The Key informant Balnanda Limbu also agreed that the youth were not much interested in the different practices. Yet he explained that now the concepts of the youth in the village have changed a bit. The people's revolution II of 2062-63 B.S (2006 A.D) also known as

democracy movement brought the concept of *loktantra* and federal state. This created awareness among youth. They were interested in trying to find out their identity. Thus it was seen that the youngsters started their organizations with the aim to preserve their cultural identity. So the people in the village were hopeful that their practices and traditions would not extinguish.

5.6 Resource Management: Practices, Changes and Challenges

The abolition of the kpat system took away the power and right of Limbu community to communally own and manage the resources. In regards to the kpat system, it was viewed to be a better way of management by few people in the village. Even this day in some parts of Nepal people still believe in the kpat system and believe that the land and the forest belongs to them. Some of the *jimmawal* in some parts of Nepal are still found to have influence in the village yet this was not the case in the study area. The *jimmawal* had been dead a long time back. Yet the people still felt the importance of the kpat system. The importance of kpat system was shared by one of the key informant this way:

“During that period people had a sense of belongingness towards the resources. They were more emotional and had attachment towards their resources. They viewed that ‘this is our property and should be preserved for our coming generations’. People used different types of medicinal plants from the forests, preserved them and knew how to apply them. But now, people are not much interested to plant the plants, they would just preserve the ones that are there and are not much concerned regarding how to prolong those plants”.

Mr. Balnanda Limbu

Post Kpat, they started managing their resources on their individual level. Yet deforestation started slowly as the people had to meet their growing needs and also the forested land was converted into the agricultural lands. With the

initiation of the government, the community forest was established and it was a new way of management system adopted by the Limbu community through the government's initiation. Then after with their own initiation they formed the reserved forest which was also of cultural importance to them. In order to meet their needs with growing consumption pattern and to preserve their resources, they have formed and have adopted new ways of managing them. This has led them to meet their daily needs and they have also put an effort to manage them for their future generations too. The management level in the village has been categorized in two levels i.e. community level and the household level.

5.6.1 Communal Management

For the common resources, the communal participation and management is important. It will provide the local people with a sense of belongingness which help the resources to be protected for their own sake and society. That was the reason to establish community forests in Nepal. Here it is to note that as the community comprises people from different caste and origin, in some management process of the village like in the case of community forests, community level developments, the participation of non-Limbis cannot be ignored. But since the village comprises maximum percentage of Limbu people, their participation level was also more. So in the community management process, both the Limbus and non-Limbis have their participation.

People in the village tried to participate in every aspect of the social life, be it in their numerous social and cultural rites or working for the betterment of their society. In regard to the forest in the village, the establishment of the community forests was a beginning for its conservation. Though it was from the government's initiative that it was formed, yet the people willingly accepted it. The community forests presented many benefits to the society which people could not ignore. The management of the community forests rested on the hands of the whole community. A member of the household

would be a representative in the CFUGs. They planned and managed the forests for the betterment of the whole community.

The establishment of the reserve forests was an interesting fact done by the Limbu community in the village. In a way the reserve forest was a symbol of historical place for the Limbu people. Thus its preservation was important to them. The management system of the reserve forest was found to be of similar kind to that of community forest. They had their own committee who worked and had regular meetings for the betterment of the forests. Sometimes they even carried out tree plantation in the area.

The decision to stop the grazing land from livestock being grazed was taken by the community. Besides the drinking water taps, the establishment of road, the irrigation facility were all set up by the initiation of the community. The villagers would occasionally gather and discuss the matters regarding the management of their various resources. They discussed on how they should and could manage their soils and their forests. They had various groups like Aama Samuha and Aashij Samuha. Aama Sumaha is specifically a mother's group initiated by the women of Nepal. The origin of Aama Samuha is an interesting fact in Nepal. Some of the researches conducted show that its origin goes to the Gurung community. From 19th century men of the hills and of ethnic community and specially the Gurung community have been recruited in the Gurkha regiment and also as Indian armies. So since the majority of men were outside the home, women had to face the responsibilities both at the household and also in the community. Thus women started forming groups in order to support each other so this was how Aama Samuha was formed in Nepal. This group specially focuses on pregnancy, child care, nutrition, family planning, sanitation and overall development of the mothers. Lately there has been a huge rise of Aama Samuha in Nepal. It has been regarded as a way for women's development. Aama Samuha specifically works for mother's

development and their welfare. Recently with time, Aama Samuha have also started working for community's development.

The Aashij Samuha is another women's group existing in the village which was initiated by the women of village. This group works for women's development, provides loans to the women with minimum interest, work for the society's development and also for the management of the resources such as on fertilizers, livestock, forests and so on. These groups have been a medium for women to come along and share their daily lives and work out for solution to their different problems. It was interesting to see two women groups existing in the village. While the Aama Samuha specifically worked for the welfare of mothers, Aashij Samuha worked for the overall development of women and even in other sectors. These different groups have helped to bring people together to help discuss the various matters and thus help in working towards the improvement both at household and community level.

5.6.2 Household Level Management

Household is an important part of the society. The household can be an important management unit. The role played by the individual household in the resource management was also incorporated in the study. The limited access to the community forests in the village prevented the people from meeting their growing needs of fuel and fodder. The further challenge for the people was to meet the basic needs without ruining the community forests. The needs of the growing resources gave the people to invent new ways of meeting them. This was how the private forests were set up by the people. The whole management and the planning of the private forests were on the hands of the individual household. The household decided the amount of area they are to be allocated to form the forest and which trees and fodder they are to plant in the area. Thus most of the needed fuel and fodder were met from the private forests. The establishment of the private forests had given a continuation to the plantation of trees.

The management of land is equally important to the village people. The land is a means of livelihood to them. The management of the agricultural land and crops is wholly done by the individual household. They divided the agricultural land and a separate land for the private forests. The household managed the crops and they decided which crops should be given more priority and planted them according to their needs. The availability of the land also determined the plantation of the different crops by the household. The allocation of the agricultural land and the private forest was equally challenging for them since they equally needed them both. Yet more allocation of land has been given to the agricultural land. Most of the household had their home gardens where they planted seasonal vegetables and some fodders. The use of the fertilizers was also decided by the household but the community also influenced in the use of the fertilizers. They discussed on which fertilizer would be good for their crops.

Livestock management is also fully done by the household and especially by the women and children. It was observed that the livestock were managed according to the availability of the fodder and the labour. So the chickens were found to be owned by the maximum number of household because it does not demand much food and labour, besides it also had its own cultural values.

5.6.3 Changes in the Management Practice

The management of the resources sometimes demands changes and compromises. The drastic change in the management level for the Limbu community came when the kipat system was abolished from the country. The introduction of the community forests in the village was a turning point for the new management of the forests. The community forests incorporated the whole community in the planning and management process and this has given them a sense of responsibility towards the preservation of the forests. Lately they have also been much aware regarding the importance of the forests and its environmental impacts. The establishment of the reserve forest was another change in the management process of the forests. Though the main intention of

the preservation had been as an historical area for the Limbu community, it gave a way to preserve the forest as well. Ultimately the area remained as a reserve forest. The change also came in the establishment of the private forests. Previously no one had their private forests because they did not need one as all of the needs were met from the common forest.

When the chemical fertilizers were introduced in the village maximum number of people used it since it brought more production. With time they realized the negative effects it brought to the soil. They realized that with the long term use of the chemical fertilizers, it would completely destroy their soil and its production capacity. They again switched back to their organic fertilizer. The decision to stop the access for the grazing land is a good example set by the villagers as a form of proper management.

The loss of the grazing land also led to the less owning of livestock by the households whereby they have been focusing more on crop production than on livestock. People managed the fodder for their livestock from the private forests and the community forests. The reaction had not just been because of the loss of the grazing land but also the children started attending the schools which led to the shortage of labour that would look after the livestock.

The changes have also been seen in terms of participation by the gender in the management level. The participation in the household level has mostly been led by women and have minimum role in the community level. They were mostly confined to the household chores while men would be representing in the community level. Recently the concept has been changed and women are also equally encouraged by men to participate in the community level. This change has been brought in by education, migration and the concept of modernization. It was encouraging to find four female members in the committee of their CFUGs. This shows that there have been increased opportunities for women to participate in society's development. The women organizations such as Aama Samuha and Aashij Samuha have also contributed for women to play their part

in the social welfare and their development. These organizations have helped in boosting up the confidence of the women and be a part of the greater society. The outside factors such as the NGOs, government, and education have also brought changes in the management practices. They have been constantly raising awareness regarding the importance of the preservation, facts of climate change, encouraging tree plantation and introducing them with new ways to do so. The further role played by these different factors shall be discussed in the section of the role of government and NGOs.

5.6.4 Challenges in Resource Management

Resource management itself is a great challenge. The challenge is to meet the growing needs of the population without bringing any major damage to the resources. In a way it is a sustainable use of the resources. The proper management needs awareness, a sense of belongingness, at times compromises and the willingness to commit to the management of the resources. The proper management of community forests still is a challenge for the village people. Still some of the people sneak into the forest and take away the fuel and fodder and they have not been able to stop them so far. The proper allocation of the resources and sharing the benefits of the community forests is yet another challenge for them. Thus they have formed groups and have organized *ghumti toli* in order to incorporate the problems and find solutions to it. They also keep a forest guard who is one among the community, to keep an eye on the forests. They continuously interact with each other so as to overcome their challenges. The meetings were thus conducted on a monthly basis where it was compulsory for a house representative to attend or else they had to bear a fine of Nrs 40. The meetings incorporated the whole of the people from the ward who had been in the CFUGs.

With time, the population in the village had increased and this further put pressure on the resources and especially on the forests. Thus managing the fuel and fodder is the challenge that people have to go through. Thus the ones who

could allocate a part of their land for the private forests were able to meet their daily needs but the challenge is for the ones who cannot afford to have private forests. May be that was also the reason why some people sneaked into the community forests thus poverty has also led to the exploitation of the resources. The deficit in the fuel wood was mostly met by buying them. The challenge was also in the case of the management of the fertilizers. Since they needed a lot of fertilizers for their crops and sometimes organic fertilizers were not enough, the people had to use inorganic fertilizers even though they did not want to.

Labour and providing education to the children at the same time presented the greatest challenge. Children were equally involved in the household chores from cooking, collecting fuel and fodder, bringing water and even working in the field. Providing education was also very important which their parents had realized lately. The management of time by the children in doing both the household chores and attending the school was a challenge for the parents. They could not stop their children from working at home because the household chores demanded a lot of time and labour and both the parents were not able to do all the work so they had to involve the children in the household works too. Thus they had decided to minimize the number of livestock so that the children could give more time to their education.

5.7 Role of Government and NGOs

The government is the supreme authority of the country. It plans, develops policy, set up rules and constitution and works towards the betterment of the society, its people and the country as a whole. The government of Nepal has developed certain policies in regard to soil and forest management. In the research area, the prominent role played by the government has only been in the establishment of the community forests. However the incoming of the community forest has led to the preservation of the forests which would otherwise have been destroyed. Besides, the government has also provided services in the field of agriculture and livestock. The services provided are

through Kisi Samuha which is an agricultural group initiated by the agricultural department of Nepal that focus on the development of the agriculture and even provide loans to the farmers. The other organization was Pashu Samuha also initiated by the government that especially focuses on livestock rearing. It provided help to the people by providing loans for the livestock rearing. Though these services were provided yet it was found that in influencing resource management, the role of government has not been much encouraging.

It was found that the role of the government in the village has been minimal and people were not satisfied with the government and its role in the development aspects of the nation. The people demanded a good road which has not been heard yet. They are still dealing with the muddy roads which create problems during the rainy seasons. The drinking water has still been a problem and they do not have enough drinking water taps. Only few taps have been there and they are scattered over the place and the ones whose house is nearby can easily fetch the water while the unlucky ones have to walk far or go to the streams. This act consumes a lot of time and especially for the girls who are responsible for bringing the water. Though the policies have been developed well targeting the benefits of the people, yet the role of the government in its implementation has been weak. Many of the policies mentioned in the Three Years Interim Plan have not been implemented in the village except for the establishment of the community forest. The policies have only been in the papers and not in action. The main reasons for the failure of implementation by the government have been corruption, lack of proper vision, lack of monitoring and evaluation, inefficient manpower, lack of commitment from the government and political instability in the country.

These days NGOs are rising in numbers who work for the betterment of the society and its people. Tvedt (1998) define NGOs as voluntary organizations that work with and very often on behalf of others. According to him others

have defined NGOs as ‘private non-profit organizations that are publicly registered (i.e. have legal status) whose principal function is to implement development projects favouring the popular sectors’. A dominant explanation has been that NGOs emerge as an institutional response to market or state failures. They occupy a niche not served or already filled by the for-profit sector or the state (ibid: 41). Recently in Nepal huge numbers of NGOs have been uprising in the country. They have been working for the all sectors of the society. They cover areas such as women and children’s’ welfare, environment management, global warming, youth development, tourism, working for the rights of indigenous people and so on.

In comparison, the NGOs seemed to play a greater role than the government in the village’s development. The NGO named Solve Nepal, the only active NGO, provided several services to them. It played a role in raising awareness regarding the preservation of the resources and also in the development of the people’s lives. Besides they also provided loans for livestock rearing. It also provided financial assistance to the network of community forest and also encouraged in the plantation of the trees and its preservation. It provided awareness and means to meet the global warming by conducting different meetings and awareness programs among the community forest user groups. The key informant had his comment on the role of NGOs:

“Even previously the people in the village had a sense that forests and other resources should not be destroyed but it was in the name of their gods but recently people are more aware of its usefulness and importance in their life. They are aware of the global warming and have realized the importance of flora and fauna. Here NGO has a major role to play. The governments’ role has been minimum”.

Mr. Balnanda Limbu

Though different services were provided in the field of agriculture and livestock rearing by both the government and NGOs it was found that only few people

were aware of these services. It was just 33% (14 HH) who received the services. It was further learnt that 28% (12 HH) had no idea regarding such services that were provided in the village. The either reason might be the lack of knowledge of the people or the service providers were not reaching out properly and efficiently. The maximum number of people had received the services in the field of agriculture rather than on other sectors. They gave trainings on the preservation of the seeds and encouraged on the cash crops.

Here the role of education cannot be overlooked that has somehow influenced in the management process. Lately people in the village were aware and conscious about providing education to their children. The school had a curriculum on environment education in their secondary level. The school encouraged tree plantation and sometimes they carried out programs on tree plantation. They also taught their students on making compost as fertilizers. More specifically they focused on orange plantation. The principal of the school and also one of the key informants Balnanda Bahadur Limbu shared that it was because it had two advantages. The orange plantation was a long term investment as they could sell the oranges and also the tree would preserve the soil. They sometimes would also carry out awareness programs on environment preservation and the facts of global warming. It was found that 8% of the respondent viewed education also played a role in their management system.

5.8 Role of Gender

Managing the resources needs labour. It demands time, commitment and challenges in proper management. The participation of men and women in the different arena of the resource and its proper management depends on their area of interest and also in the social structure. In Asia, it is mostly women who are more close to nature as they constantly interact with the environment and its resources. Women, especially the rural women play a crucial role in doing the household chores such as collecting fuel wood, fodder and water for the

household. These activities lead them to continuously interact with the environment.

The responsibility to meet the deficit of the resources such as fuel and fodder also thus lies on the shoulder of the women. A variant eco feminism from a southern perspective and WED (Women, Environment and Development) has shown a relation between the women and natural resources where the Southern women are more concerned of the resources and the environment and if they are to take care of the earth and its resources then there is more chances of the resources for its sustainability (Dankelman and Davidson 1988; Shiva 1989; Rodda 1991; Sontheimer 1991; quoted in Resurreccion and Elmhirst 2008:6).

It was found out that in Limbu community, most of the women have always been given equal power and freedom in the household decision making process. She was equally involved by her counterpart when it comes to making the household decisions. She fully takes over the responsibility and decisions for the household chores while the men play a greater part outside the household. She would cook, bring water, collect fodder look after the family and the livestock and would also work in the field. The entire household responsibility and managing the resources for the house is on her burden. While the hard works are taken up by men like ploughing the field, taking the crops and vegetables to sell in the market and representing in the community.

Yet it was not always men who represented in the community. Women would also participate in the community level because men did not always have time to participate so they sent women as representative in the community meetings. Whoever could manage the time would participate in the community level. The women's groups like *Aama Sumuha* and *Asij Samuha* had also been beneficial for the women. These particular groups worked specially for the welfare of the women. In times of need these groups provided loans with minimum interest rate. Their funds are mainly from the membership fees and the interest generated from the loans. Women also had a good representation in the

committee of the CFUGs. The households which did not have male members, women participated in all the decision making process. Yet for these household who did not have male members, it presented a challenge to meet all the demands the household needed. For a single woman to overcome the household chores and also to equally participate in the community level demanded more time and her energy. In a way sometimes, they hired some labour to work for them in the field so the burden to work both at the field and at home would be less for them.

Besides women, children were equally contributing in their household management. They were responsible to collect fodder, fuel wood and drinking water. Though they attended school, they would wake up early in the morning, attend the household chores and visit forests to collect the fuel wood and fodder. Even after school they had to attend to the household works and also contribute to the field works. Among the children, especially it was the girls, taking up the duty for the household works. It was easy to see some girls doing the household chores while the boys playing the cards along with their male friends. It is a culture for a woman to manage the house while the men work outside doing the hard works.

It was learnt that most of the household decisions were equally made by both the gender yet when it came to the community level, the major positions and decisions for the village were held by the men. There was a variation of power and authority between the gender when it came to household and community level. The decisions for the community were mostly made by men with minimum participation of women. The reason for the less participation of women in community is that women have always been busy with their household chores and taking care of the children and Nepalese society has always been a patriarchal society. Men have always tended to represent the society. Lack of education among the women is also the reason for their minimum participation in the community. Though women's participation were

encouraged in the developmental and management aspects by men themselves still the important decision for the welfare of the village were all taken up by the men.

CHAPTER 6

CONCLUSION

The research was conducted in one of the VDC of Dhankuta district of Nepal. It has been conducted among the Limbu community who have been residing in the area from generations. The objective of the research was to study the resource management by the Limbu community. Over time, resources and even the management system change. Increase in population demands more resources but the resources do not increase as per the population increases. Further it tends to decrease by overusing it. Thus it becomes necessary for people to manage it for their very survival.

Agriculture was found to be the main economic activity of the Limbu community where the research was conducted. Thus land was an important resource for them. People still practiced subsistence agriculture and the technologies used were still traditional. Lack of infrastructure and economy also prevents the use of the modern technologies and rural Nepal has been still far away from some of the modern technologies. The different farming practices used had been descended from their forefathers and they are still pursuing the same. Though with time by increase in population, increase in market prices, they have tried to maximize their production yet not at the cost of the depletion of the resources. That was how they had minimized the use of the chemical fertilizers because they experienced that with intensive use of chemical fertilizers over time had a negative effect on the soil. They shared their opinion that the resources around them are their life as their very survival depends on it and they cannot afford to deplete it. Even more they share a close relation with the nature.

Although agricultural land is privately owned and managed, much of the forest areas were found to be communally managed. It was observed that communal management of resources is important as it binds certain access and establish set of rules and regulations for the use of the resources. So this way resource

are conserved. It also acts as a way where different sectors of the people can come together, discuss the problems and find a solution to it. Yet the communal management does not always bring in positive results. There are always some issues along with it. The illegal logging of the trees is what the villagers have not been able to take care of. Since most of the people in the village are related to each other, it also might be awkward to point fingers at the ones who do the illegal acts. The fear of conflict might also be the reason. Poverty is another reason that has made people to enter the forests and especially by those people who cannot afford to have a private forest. The lack of strong monitoring power by local people, power relations, lack of unity among the local people are the reasons that have led to the mismanagement of the community forest.

A huge amount of fire wood was found to be consumed by the people and it was used as the only source of energy. Though lately different alternatives have been developed for fire wood, people of the village are still far from some of them. Though kerosene is the only one that is easily accessible yet the high cost avoids them from consuming it and no one in the village was found to be using this. The other alternative such as the use of biogas has not been introduced yet in the village. Biogas, which is a gas that is produced from the cattle dung, manure, sewage, municipal wastes, green waste can be a good source of cheap and unpolluted energy. There is a good potential of using biogas in the village but the people are not aware of its use and value. The use of these alternatives source of energy could have put less pressure on the forest and the people did not have to invest more on firewood. Like in the case of private forests, if they had adopted the alternatives then the people did not have to use their land for private forests and instead it could have been used for crops which would be more beneficial for them. The relatively easy access of the firewood, less cost of the firewood, lack of purchasing power and unawareness facts regarding the other alternatives has prompted the immense use of fire wood by the villagers.

Yet the increasing use of firewood has led them to develop their own alternatives to meet their demand like the establishment of the private forests. The establishment of private forests has been an advantage both to the people and the area. Though the land has to be allocated for the forests yet this has enhanced the number of trees and other vegetation. Besides the private forests has been a good source of firewood, fodder and other products. Had the villagers not developed the private forests, it would have been very hard for them to meet their daily needs. The establishment of private forests shows how they have been managing their resources as per their needs. Further, the establishment of reserved forest and the decision to put a ban on livestock from grazing on the common grazing land was found to be encouraging step taken by the Limbu people. This shows how the people are aware of the importance of the resources and how they initiated them to be preserved. The management of the livestock has also been adopted as per their needs and importance. Since the children started going to school there was a difficulty to get people to herd the livestock. Thus the lack of labour and the importance of education for their children made them to manage their livestock accordingly.

The different resources have been managed both at the community and household level. They were found to be continuously interacting for discussing on the better management of the resources. Regarding the question of gender basis management of the resources, maximum numbers of households were found to be managed by both the gender. Still it was observed that most of the decisions and important positions in the village were occupied by men. Yet the men were found to be encouraging women to be involved in the communal level. The management of the resources in the village has been mostly initiated by the villagers themselves and the role of government has been minimal. While going briefly at the list of different policies that are so well developed for the management of the land and forest by the government, it was found that none of the policies except for the establishment of the community forests was implemented in the research area. They have failed to implement the policies.

The lack of vision, inefficient manpower, political instability and corruption are the high reasons that are be blamed. Thus the role of the government in regard to resource management has not been much overwhelming. It would have brought tremendous effect in resource management if only the half of the policies were implemented by the government. Yet it seems to be a far away dream that is so hard to achieve if the government of Nepal ever implements it's so called policies.

While at the same time the role of NGOs in the village cannot be overlooked and both the NGOs and education sector have not failed to promote the preservation of the resources. One of the only active NGO was continuously raising awareness regarding the facts of climate change and encouraging people to preserve the environment while the education sector was equally spreading the importance of environment through the curriculum of environment education that they had incorporated. Through this, both the children and the villagers have been aware of the importance of the resources.

The village is still far away from proper infrastructure and development. The bigger NGOs and developmental factors have not yet reached them. The Limbu people live a simple life and are still far away from the technological world. Thus the land and forests are not just a resource for them but the only means of survival especially for those whose family members have not been abroad for earning and do not have any extra source of income. They get their life out of it and that is the other reason they worship the land and forests. The people were found to be enthusiastic about the preservation of their resource and also quite aware of the conservation and for their future needs. The management of the resources have been adopted with the course of time and according to their needs. Though the resources were somehow mishandled after the kipat system was taken away, now the Limbu community has organized their own local ways of management. The overcoming of the challenges to their resource management is itself a challenge for them. The growing demand and

sometimes lack of unity is something they have to deal with the management process. The findings of this research might not be sufficient in bringing out more of the resource management strategy of the Limbu community henceforth further research is recommended in order to better understand the management process.

REFERENCES

- Acharya, Harihar. (1993). 'Population, Agricultural Productivity and Environment: The Nepalese Context' in Dahal, Madan, K and Dahal, Dev, Raj (eds), *Environment and Sustainable Development: Issues in Nepalese Perspective*. Nepal Foundation for Advanced Studies (NEFAS) and Friedrich-Ebert-Stiftung (FES). Kathmandu.
- Acharya, K.P. (2002). Twenty-Four Years of Community Forestry in Nepal in *International Forestry Review* (online) 4 (2). URL: <http://www.atypon-link.com/CFA/doi/pdf/10.1505/IFOR.4.2.149.17447> (accessed on: 19th February 2011).
- Adhikari, Bhim. (2004). 'Community Forestry in Nepal: Management Rules and Distribution of Benefits'. SANDEE (South Asian Network for Development and Environmental Economics), Policy brief, March. URL: http://www.sandeeonline.org/uploads/documents/publication/812_PUB_policy_brief_bhim.pdf (accessed on: 21st February 2011)
- Arya, Ramesh, C. (1993). 'Trade, Transport, Tourism and Environment: The Nepalese Experience' in Dahal, Madan, K and Dahal, Dev, Raj (eds), *Environment and Sustainable Development: Issues in Nepalese Perspective*. Nepal Foundation for Advanced Studies (NEFAS) and Friedrich-Ebert-Stiftung (FES). Kathmandu.
- Ashenafi, Zelealem, Tefera and Williams, N, Leader. (2005). Indigenous Common Property Resource Management in the Central Highlands of Ethiopia in *Human Ecology* Vol. 33, No. 4, August 2005. URL: <http://www.jstor.org/stable/4603586> (accessed on 15th November 2010).
- Anderson, David, A. (2010). *Environmental Economics and Natural Resource Management*. Routledge, London and New York.
- Bajracharya, Keshar, Man. (1993). 'Economic and Environmental Management of Forests in Nepal: Issues and Problems' in Dahal, Madan, K and Dahal, Dev, Raj (eds), *Environment and Sustainable Development: Issues in Nepalese Perspective*. Nepal Foundation for Advanced Studies (NEFAS) and Friedrich-Ebert-Stiftung (FES). Kathmandu.
- Berkes, Fikret. (1999). *Sacred Ecology: Traditional Ecological Knowledge and Resource Management*. Taylor and Francis. Philadelphia, USA.

Berkes, Fikret and Dudgeon, Roy, C. (2003). 'Local Understanding of the Land: Traditional Ecological Knowledge and Indigenous Knowledge' in Selin, Helaine's (eds) *Nature Across Cultures: Views of Nature and the Environment in Non-Western Cultures*. Kluwer Academic Publishers, The Netherlands.

Blandford, Percy, W. (1976). *Old Farm Tools and Machinery: An Illustrated History*. David and Charles, Newton Abbot London.

Buchy, Marlène and Rai, Bimala. (2008). 'Do Women-Only Approaches to Natural Resource Management Help Women? The Case of Community Forestry in Nepal' in Resurreccio, Bernadette P and Elmhirst Rebecca (eds), *Gender and Natural Resource Management: Livelihoods, Mobility and Interventions*. Earthscan, UK and USA.

Burman, Savitri, G. (2003). 'Ecological Interlinkages in Resource Management and Development' in Thakur, Baleshwar (eds), *Perspectives in Resource Management in Developing Countries: Volume I, Resource Management: Theory and Techniques*. Concept Publishing Company, India.

Caplan, Lionel. (1970). *Land and Social Change in East Nepal: A Study of Hindu-Tribal Relations*. Routledge, London.

Craig, Andrew and Vanclay, Frank. (2005). 'Questioning the Potential of Deliberativeness to Achieve 'Acceptable' Natural Resource Management Decisions in Eversole, Robyn and Martin, John (eds), *Participation and Governance in Regional Development: Global Trends in an Australian Context (155-172)*. Ashgate Publishing Limited.

Colding, Johan and Folke Carl. (2001). Social Taboos: Invisible Systems of Local Resource Management and Biological Conservation in *Ecological Applications* (online) Vol. 11, No. 2, April, pp, 584-600. Ecological Society of America. URL:

<http://www.jstor.org/stable/3060911?origin=crossref>

(accessed on 15th November 2010)

Chemjong, Iman, Singh. (2003). *History and Culture of Kirat People*. Kirat Yakthung Chumlung, Lalitpur, Nepal.

Choudhury, Maitreyee. (2006). *Sikkim: Geographical Perspective*. A Mittal Publication, India.

Drijver, Carel, A. Wetten, Jerone, C.J and Groot, Wouter, T, De. (1995). 'Working with nature: Local Fishery Management on the Logone Floodplain in Chad and Cameroon' in Breemer, J.P.M. Van Den. Drijver, C.A and Venema, L.B (eds) *Local Resource Management in Africa*. John Wiley and Sons, Chichester, New York, Brisbane, Toronto, Singapore.

Davidson, Joan. Myers, Dorothy and Chakraborty, Manab. (1992). *No Time to Waste: Poverty and the Global Environment*. Oxfam. Uk and Ireland.

Dankelman, Irene and Davidson, Joan. (1991). 'Land: Women at the Centre of the Food Crisis' in Sontheimer, Sally's (eds) *Women and the Environment: A Reader Crisis and Development in the Third World*. Earthscan Publications, London.

Daniggelis, Ephrosine. (1997). *Hidden Wealth: The Survival Strategy of Foraging Farmers in the Upper Arun Valley, Eastern Nepal*. Mandala Book Point. Kathmandu, Nepal.

German, Laura. Ramisch, Joshua, J and Verma, Ritu (eds). (2009). *Beyond the Biophysical: Knowledge, Culture, and Power in Agriculture and Natural Resource Management*. URL:

<http://www.springerlink.com/content/978-90-481-8825-3#section=713899&page=1&locus=21> (accessed on: 15th February 2011)

Head, Brian. (2005). 'Participation or Co-Governance? Challenges for Regional Natural Resource Management' in Eversole, Robyn and Martin, John (eds), *Participation and Governance in Regional Development: Global Trends in an Australian Context (137-153)*. Ashgate Publishing Limited.

Howitt Richard. (2001). *Rethinking Resource Management: Justice, Sustainability and Indigenous Peoples*. Routledge, London and New York.

Jensen, Clayne, R and Guthrie, Steven, P. (2006). *Outdoor recreation in America: Sixth Edition*. URL:

http://books.google.com/books?id=HESJLEJIKwQC&pg=PA259&dq=the+challenges+of+natural+resource+management&hl=no&ei=nLiITYWLHYbEswaMkP2tDA&sa=X&oi=book_result&ct=result&resnum=5&ved=0CE0Q6AEwBA#v=onepage&q=the%20challenges%20of%20natural%20resource%20management&f=false (accessed on 21st March 2011)

Jones, Rex, L. (1976). 'Limbu Spirit Possession and Shamanism' in Hitchcock, John, T and Jones, Rex, L (eds) *Spirit Possession in the Nepal Himalayas*. Vikas Publishing House Pvt Ltd. New Delhi, Bombay, Bangalore, Calcutta, Kanpur. India.

Kasajoo, Vinaya. (2008). 'Nepal' in Banerjee, Indrajit and Logan, Stephen (eds), *Asian Communication Handbook* (pg. 335-368). Asian Media Information and Communication Centre (AMIC) and Wee Kim Wee School of Communication and Information Nanyang Technological University (WKWSCI-NTU).

Limbu, M, K. (2005). *Fragile Mountains*. URL:
http://books.google.com/books?id=OnBWIwaw7SQC&printsec=frontcover&source=gbv2_summary_r&cad=0#v=onepage&q&f=false (accessed on 10th May 2010)

Lyster, Rosemary. Lipman, Zada. Franklin, Nicola, Wiffen, Graeme and Pearson, Linda. (2007). *Environmental and Planning Law in New South Wales*. The Federation Press, Sydney.

URL:http://books.google.com/books?id=_oqFfDeiyksC&printsec=frontcover&source=gbv2_summary_r&cad=0#v=onepage&q&f=false (accessed on 11th March 2011)

Manandhar, Gautam, Buddha. (2009): "Challenges of Agricultural Machinery Development in Nepal". Paper presented in The Fifth Session of the Technical Committee (TC) of UNAPCAEM & Expert Group Meeting on Application of Agricultural Machinery for Sustainable Agriculture in the Asia-Pacific Region, 14-16 October 2009, Los Banos, the Philippines.

URL:<http://www.unapcaem.org/Activities%20Files/A09105thTC/PPT/np-doc.PDF> (accessed on 6 December 2010)

Matsuki, Yoichi and Nagamatsu, Miki. (2008). 'High Nature Value Farming and the Agri-Food Chain in Japan' in Brouwer, Floor. Rheenen, Teunis, Van. Dhillon, Shivcharn, S and Elgersma, Anna, Martha (eds), *Sustainable Land Management: Strategies to Cope with the Marginalisation of Agriculture*. Edward Elgar Publishing Limited.

National Planning Commission (NPC). (2007). *Three Year Interim Plan (2007/08-2009/10)*. Government of Nepal, Singhadurbar, Kathmandu, Nepal.

Nepal. Central Bureau of Statistics (CBS). (2008). *Statistical year Book of Nepal 2008*. Kathmandu, CBS Publication.

Nurrochmat, Dodik Ridho. (2005). *The Impacts of Regional Autonomy on Political Dynamics, Socio-Economics and Forest Degradation: Case of Jambi-Indonesia*. Institute of Forest Policy and Nature conservation. University of Goettingen.

Notzke, Claudia. (1994). *Aboriginal Peoples and Natural Resources in Canada*. Centre for Aboriginal Management Education and Training (CAMET) and Captus Press Inc, Canada.

Ouma, George and P, Jeruto. (2010). 'Sustainable horticultural crop production through intercropping: The case of fruits and vegetable crops: A review' in *Agriculture and Biology Journal of North America*. URL: <http://scihub.org/ABJNA/PDF/2010/5/ABJNA-1-5-1098-1105.pdf> (accessed on 15th February 2011)

Paudel, S. (2003). Community Forestry in Nepal in *Himalayan Journal of Sciences* (online) 1(1): 62-65, URL: <http://www.nepjol.info/index.php/HJS/article/viewArticle/190> (accessed on 7th December 2010)

Piters, Bart, De, Steenhuijsen and Fresco, Louise, O. (1995). 'Farmers Managing their Most Scarce Natural Resources: An Example of Local-Level Soil Fertility Management in Northern Cameroon in Breemer, J.P.M. Van Den. Drijver, C.A and Venema, L.B (eds) *Local Resource Management in Africa*. John Wiley and Sons, Chichester, New York, Brisbane, Toronto, Singapore.

Regmi, Mahesh, Chandra. (1976). *Land Ownership in Nepal*. University of California Press, Berkeley, Los Angeles, London.

Resurreccio, Bernadette P and Elmhirst Rebecca. (2008). *Gender and Natural Resource Management: Livelihoods, Mobility and Interventions*. Earthscan, UK and USA.

Sagant, Philippe. (1976). 'Becoming A Limbu Priest: Ethnographic Notes' in Hitchcock, John, T and Jones, Rex, L (eds) *Spirit Possession in the Nepal Himalayas*. Vikas Publishing House Pvt Ltd, New Delhi, Bombay, Bangalore, Calcutta, Kanpur. India.

Subba, Chaitanya. (1995). *The Culture and Religion of Limbus*. K. B. Subba. Kathmandu.

Subba, T.B. (1999). *Politics of Culture: A Study of Three Kirata Communities In the Eastern Himalayas*. Orient Longman Limited, India.

Shrestha, Upendra. (2000). 'The Cultural Heritage of Nepal and its Preservation' in Pande, Badri, B. Maharjan, Sharada, D. Shakya, Vidyadhar and Karki, Uddhab, B (eds) *Environmental Education Source Book for Bachelor of Education Programme*. IUCN. Nepal.

Timsina, Netra, P and Ojha, Hemant, R. (2008). 'Agricultural Technology Development in Nepal: Critical Assessment from Knowledge System Perspective' in Ojha, Hemant, R. Timsina, Netra, P. Chettri, Ram, B and Paudel, Krishna, P (eds), *Knowledge Systems and Natural Resources: Management, Policies and Institutions in Nepal* (pg23-39). Cambridge University Press India Pvt. Ltd

The World Bank. (2000). *Natural Resource Management Strategy: Eastern Europe and Central Asia*. World Bank Technical Paper No. 485 Europe and Central Asia Environmentally and Socially Sustainable Rural Development Series. The World Bank, Washington, D.C.

URL:

http://books.google.com/books?id=blkADeblGIC&printsec=frontcover&hl=no&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false (accessed on 21st March 2011)

Tucker, Mary, Evelyn. (2003). 'Worldviews and Ecology: The Interaction of Cosmology and Cultivation' in Selin, Helaine's (eds) *Nature Across Cultures: Views of Nature and the Environment in Non-Western Cultures*. Kluwer Academic Publishers, The Netherlands.

Tvedt, Terje. (1998). 'Why Do Development NGOs Exist' in Terje Tvedt, *Angels of Mercy or Development Diplomats? NGOs and Foreign Aid*. Africa World press.

UNFAO (Food and Agriculture Organization of the United Nations). (1991). 'Restoring the Balance: Women and Forest Resources' in Sontheimer, Sally's (eds) *Women and the Environment: A Reader Crisis and Development in the Third World*. Earthscan Publications, London.

Vaughn, Jacqueline. (2007). *Conflicts Over Natural Resources*. ABC –CLIO, Inc, California.

Wells, J. Kathirithamby. (1995). 'Socio-Political Structures and the Southeast Asian Ecosystem: An Historical Perspective up to the Mid-Nineteenth Century' in Bruun, Ole and Kalland, Arne (eds) *Asian Perceptions of Nature: A Critical Approach*. Curzon Press, Richmond.

Wilken, Gene, C. (1987). *Good Farmers: Traditional Agricultural Resource Management in Mexico and Central America*. University of California Press, Berkeley, Los Angeles, London.

Zezeza, Tiyaambe. (1993). *A Modern Economic History of Africa: Volume I: The Nineteenth Century*. East African Educational Publishers Ltd, Nairobi and Kampala.

Appendix I
Questionnaires
Questionnaire for the Household Survey

Personal Information

Name: Age: Sex: Education:

Family Type: Number of family members:

1. What is your main occupation?
a. Agriculture b. Services c. Wage labourer d. Others.....
2. How long have you been living here? Years.....Months
3. Do you believe that man has a relationship with the land and forest?
a. Yes b. No
4. How do you look at the land and forest?
a. Supreme power b. Resources c. Just a necessity d. No idea
5. How often do you visit forest?
6. For what purposes do you visit forest?
a. Fodder b. Firewood c. Medicinal d.Recreation e. Others.....
7. Do you think forest should be preserved?
a. Yes b. No
8. If Yes why?
a. Religious and cultural values b. Life's sustenance c. Others.....
9. Has the coverage of forest changed over time?
a. Yes b. No

10. If yes, what are the reasons?

a. Increase in population b. Ignorance c.Others.....

11. What are the different crops that you grow?

Crops	Yield /season	Purpose-HH consumption/cash/religious

12. Who has a major role to play in resource management in your household?

a. Male b. Female c. Both

If it is a male in which sector?

If it is a female in which sector?

13. What are the different livestock that you have?

Birds	Purpose	Animals	Purpose

14. Do you have any categories for forest?

a. Yes b. No

If yes, what are the different categories for forest?

a. Community forest b. Religious forest c. Cultural forest

15. Do you have any significance for this category?

- a. Yes b. No

16. Do you have any categories for land?

- a. Yes b. No

If yes, what are they and their significance?

.....
.....

17. Have you ever received any government or Non government services for the resources?

- a. Yes b. No

If yes, in which area? a. Forests b. Agriculture c. Livestock d. Others
(Training, Awareness, Loans, saving credit)

18. Do you have any religious/cultural tribute to the resources?

- a. Yes b. No c. No idea

19. What are the other forces responsible for your resource management?

- a. Education b. Role of NGOs/INGOs c. Technology d. Migration
e.Others.....

20. Do you still practice the various cultural rites?

- a. Yes b. No

If Yes, why? A. Fear of destruction b. As a respect to ancestors c. As a duty
d. Beliefs e. Has some significance f. Others

If No why?.....

21. How important are your cultural beliefs and practices to you?

a. Very important b. important c. Not so important

22. Which management practices do you prefer the most? Can you give reasons?

a. Traditional

b. Modern

c. Both

23. Do you think the management practices have changed with time?

a. Yes b. No

Can you give the reasons for
this?.....

24. How do you rate your ecology?

a. Fragile b. Satisfactory c. Others.....

25. Do you believe land and forest is a necessity? Why?

a. Yes b. No

26. Do you want to have any changes in your village or have any suggestions to improve the village?

APPENDIX- II

Questionnaire for Key informant Interview

1. What are the cultural practices that relate Limbu's relationship with land and forest?
2. How important is land and forest to Limbu?
3. What are the different crops that you produce and for what purpose?
4. How do you handle the natural calamities if they ever occur? Do you have any local traditional practices to prevent those calamities?
5. What are local or ethnic practices for resource management? Have they changed over time?
6. Is the land and forest changing with time and how (in terms of, population and migration etc)?
7. How many land and forest categories are there in this community? Are there any significance attached to it?
8. Can you briefly describe about the kipat system?
9. How has been the role of gender in the resource management?
10. How do you pay tribute to the resources? What are the different rituals that you perform?
11. How far the other factors have influenced your practices in resource management?